DOCUMENT RESUME

ED 027 439

VT 008 101

Papers Presented at the National Conference on Curriculum Development in Vocational and Technical Education. (Dallas, March 5-7, 1969).

California Univ., Los Angeles.

Spons Agency-Office of Education (DHEW), Washington, D.C.

Pub Date Mar 69

Note-83p.

EDRS Price MF-$0.50 HC-$4.25

Descriptors-Behavioral Objectives, *Conference Reports, *Curriculum Development, Curriculum Evaluation, *Curriculum Planning, Curriculum Problems, Instructional Materials, Speeches, Standards, Technical Education, Vocabulary, *Vocational Education

Identifiers-*National Conference On Curriculum Development

Papers included are: (1) "Intent and Purposes of Part I of the Vocational Education Amendments of 1968" by M.L. Barlow, (2) "The Future of Vocational Curriculum Development" by G.B. Leighbody, (3) "Evaluation of Curriculum Materials and Their Use" by W.J. Popham, (4) "Current Trends in Curriculum Theory and Development" by L.L. Tyler, (5) "Training of Personnel in Curriculum Development" by A.D. Hill, (6) "The Development of Standards for Curriculum Materials" by B.R. Shoemaker, (7) "One of the Humanities" by B.R. Shoemaker, and (8) Definitions of Terms Used in Vocational and Technical Education. A list of the 213 pre-registered conferees is included with the document. (DM)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED027439

PAPERS PRESENTED AT THE

NATIONAL CONFERENCE

ON

CURRICULUM DEVELOPMENT

IN

VOCATIONAL AND TECHNICAL

EDUCATION, ([illegible]).

March 5, 6, 7, 1969

Dallas, Texas

Sponsored by

UCLA and USOE

VT008101

TABLE OF CONTENTS

Chapter Page

1. Intent and Purposes of Part I of the Vocational Education Amendments of 1968 1-6
by Melvin L. Barlow

2. The Future of Vocational Curriculum Development 7-12
by Gerald B. Leighbody

3. Evaluation of Curriculum Materials and Their Use 13-24
by W. James Popham

4. Current Trends in Curriculum Theory and Development 25-44
by Louise L. Tyler

5. Training of Personnel in Curriculum Development 45-50
by Alberta D. Hill

6. The Development of Standards for Curriculum Materials ... 51-68
by Byrl R. Shoemaker

7. One of the Humanities 69-70
by Byrl R. Shoemaker

8. Definitions of Terms Used in Vocational and Technical Education 71-74

9. Pre-Registered Conferees 74-81

National Conference
Curriculum Development in
Vocational and Technical
Education

Baker Hotel
Dallas, Texas
March 5, 1969

INTENT AND PURPOSES OF PART I OF THE VOCATIONAL EDUCATION AMENDMENTS OF 1968

Melvin L. Barlow

Professor of Education
University of California, Los Angeles

The major task confronting the Federal Board for Vocational Education in 1917 was the preparation of instructional material. Curricula for vocational education did not exist; these had to be created and there were few models to follow.

Curriculum objectives in 1917 were reasonably clear. The end product was the productive worker--at the entry level for beginners in the labor force, and increased mobility for the employed worker. These basic curriculum objectives are true in 1969, but complications arise because of the diverse nature of the groups to be served, and because of the wide range of occupations included within the purview of vocational education.

The vocational education curriculum has been sensitive to social conditions--World War I, the great depression of the 1930's, World War II, and the contemporary emphasis upon people who have not been well treated by society. The second area of curriculum sensitivity has been the general state of technology. The dynamism of social conditions and technology creates the necessity for attention to change in the vocational education curriculum. When social and technical change are rapid, as is true of the present period, curriculum change in vocational and technical education is commanding, urgent, and imperative.

From 1917 to the Age of Technology

At first the major effort in development of instructional material was undertaken by the Federal Board for Vocational Education. A large staff was retained by the Board for several years to produce the material representative of the vocational content. Later, when the program grew substantially throughout the nation, this procedure was no longer practical. Teacher educators in vocational education then focused attention upon "occupational analysis" as a means of helping teachers produce their own instructional material.

Curriculum development, in its larger sense, did not exist. In the high school at least half of the day was devoted to general studies and half to vocational studies with no more than accidental relationship between the two.

Teacher prepared instructional materials, with each teacher responsible for his own materials, worked fine for many years. In some instances even today it is the only way to approach a particular problem. However, as enrollment in vocational education expanded total reliance upon teacher prepared materials became a complicated matter. Teacher education institutions began to stockpile good examples of curriculum materials and new teachers spent their time updating such materials and adapting the materials to their programs of instruction. Exchange of materials from teacher to teacher, school to school, and state to state became common practice. Within a particular school the teacher was left to his own devices, except in larger districts where assistance was available from curriculum specialists.

Then came World War II, and everything changed. The dramatic development of instructional materials, in order to prepare more than eight million people to work in production in defense of the Nation, created new ideas and desires related to curriculum development. Special task forces, immediately following World War II, prepared instructional materials for special instructional areas. A number of states organized curriculum laboratories, and national conferences and workshops were conducted in recognition of the imperative need in the total area of curriculum development, including a vast expansion in preparation of curriculum materials.

The story at this point becomes considerably more familiar as we move into the contemporary period. The need for curriculum development and instructional materials continued unabated. The Division of Vocational and Technical Education, U. S. Office of Education made valiant attempts to solve some of the curriculum problems, and the publishers throughout the nation became visible in their desire to participate in the realm of published materials. From a variety of sources we began to see innovative ideas become practice. But the total effort in curriculum development and in preparation of instructional materials was but a small drop in the bucket.

The Age of Vocational Education

In 1961, President Kennedy appointed a Panel of Consultants on Vocational Education to study the total area of vocational education and to report findings and recommendations. The Panel, in its report Education For a Changing World of Work, discussed in some detail the problem, plight, and need for curriculum development and for preparation of instructional materials. The Panel's recommendations were quite clear.

> "It is recommended that the production of instructional materials for vocational courses be recognized as vital to an effective national program and that--
>
> 1. One or more instructional material laboratories be established to produce and distribute vocational instructional materials.
>   a. Programed learning aids, visual aids, and newer methods of the presentation and use of materials should be considered in the production of instructional materials.
>   b. All materials developed should be made available to private publishers for maximum distribution.
>
> 2. It be a responsibility of the U. S. Office of Education through the Division of Vocational and Technical Education to--
>   a. Establish and administer instructional materials laboratories through contractual arrangements with a State department of education, a college, a university, or a large school district.
>   b. Develop policies for the operation, coordination between centers, production of materials, and distribution of the materials produced in these centers.
>   c. Finance the operation of these centers.
>
> 3. An adequate quantity and an appropriate quality of instructional supplies, tools, instruments, and equipment be recognized as essential to good instruction. Standards of evaluation should consider the quantity and quality of supplies, tools, instruments, and equipment available." [1]

The intent of the Panel concerning instructional material development did get into the Vocational Education Act of 1963, but it was lost in a listing of other imperatives. The Act did not feature the need for curriculum and instructional materials development to an extent commensurate with the Panel's expectations. Despite later exemplary efforts of the Division of Vocational and Technical Education, U. S. Office of Education, and similar efforts of the states, the actual progress in curriculum development fell far short of expectations and needs.

Five years later, in 1967, the matter of curriculum development came to the attention of the Advisory Council on Vocational Education. The Council supported the Panel's earlier curriculum views and in the general report of the Council, Vocational Education: The Bridge Between Man and His Work, the following recommendation was made:

> "IT IS RECOMMENDED, That there be established two to four centers for curriculum development in vocational education.
>
> At present, some 12 curriculum centers are operated by the States, usually in cooperation with universities. Each of these centers has developed curriculum materials for the occupations most commonly taught in vocational education. Very little time or money has been spend on each of these, the result being that we have many poor sets of materials for teaching the more common occupations. For the less frequently taught occupations, little or no curriculum materials are available. There is need for two or three well-developed sets of curriculum materials for each of the occupational fields. This would give each school a choice, and it would still prevent waste and unnecessary duplication.
>
> Probably 10 times as much money has been spent on curriculum materials for physics (taken by 5 percent of the high school students) as has been spent on the 100 or more occupations commonly taught in vocational education." [2]

The Council's report provided guidance to the Congress in preparation of the Amendments of 1968. This time, however, the Act of 1968 made curriculum development in vocational and technical education a special issue. The details of Part I of the Act delineates clearly the intent of the Congress, and expresses in general terms the intent of the Advisory Council on Vocational Education.

Paraphrasing Part I of the Act of 1968, it says in effect:

1. Curriculum development is important.
2. The curriculum development task for vocational education is complicated in a variety of ways.
3. The purpose of Part I is to provide the ways and means of achieving the desired program of curriculum development.
4. $10,000,000 is authorized for Fiscal Year 1970.
5. The Commissioner of Education has a number of choices to make in order to implement this section.

He can:

a. Make grants to colleges or universities.
b. Make grants to State Boards.
c. Make grants to other public or non-profit private agencies and institutions.
d. Make contracts with public or private agencies organizations or institutions.

To:

A. Develop and disseminate vocational education curriculum materials.
B. Develop standards for curriculum development
C. Coordinate efforts of states and prepare lists of available material.
D. Survey curriculum development in other agencies.
E. Evaluate curriculum materials and their use.
F. Train personnel in curriculum development.

Furthermore, the Act defines curriculum materials as follows:

> ". . . curriculum materials means materials consisting of a series of courses to cover instruction in any occupational field in vocational education which are designed to prepare persons for employment at the entry level or to upgrade occupational competencies of those previously or presently employed in any occupational field."

Our task at this national conference is to study the sections of the Act related to curriculum development in vocational and technical education. We must develop guidelines for interpretation and action concerning each section of Part I of the Act. The success of the conference depends largely upon the productive work of small groups. Experts have been asked to provide special insight into elements directly and indirectly related to particular facets of curriculum development. The considered judgment of this conference is an imperative necessity. We must be in a position to forth our best ideas; in particular we must provide a succinct description of the role to be played by the Division of Vocational and Technical Education, Office of Education.

Following this conference nine regional clinics will be held. Each clinic will inculde a review of the nine national conferences. Each regional clinic will have suggestions to make about curriculum development. When all of the meetings have been concluded the staff of this national conference will summarize the total knowledge gained from this national conference and the regional clinics and will prepare guidelines for curriculum development in vocational and technical education, which will be widely distributed.

Our task is to answer major questions such as who? what? why? where? when? and how?, as these questions are related to the sections of the Act. Our judgments will provide a frame of reference for the action that the Commissioner of Education must take in the near future and will influence the course, direction, and emphasis upon curriculum development for a long time in the future.

References:

1. U.S. Department of Health, Education, and Welfare, Office of Education. Education for a Changing World of Work, OE-80021. Washington: Government Printing Office, 1963, pp. 240-241.

2. U.S. Department of Health, Education, and Welfare, Office of Education. Vocational Education: The Bridge Between Man and His Work, OE 80052. Washington: Government Printing Office, 1968, p. 209.

March 5, 1969

THE FUTURE OF VOCATIONAL CURRICULUM DEVELOPMENT

by

Gerald B. Leighbody
Professor of Education
State University of New York at Buffalo

The Vocational Amendments Act of 1968 provides, for the first time, special funds for curriculum development. These funds may be used for several purposes, all related to the improvement of instruction, and with special emphasis upon new and emerging occupations.

It would appear that the present need is to assess the nature and scope of the curriculum task that confronts the vocational educator as a result of this legislation, so that suitable plans of action can be prepared and the necessary organizational arrangements developed. But we will not be ready for detailed planning until certain fundamental issues are clarified and certain basic concepts re-examined. Therefore, this paper will not attempt to suggest the organizational strategies or working procedures which will ultimately be necessary to get the job done. Instead it will focus on some very basic considerations, and will raise some critical questions which must be answered before useful goals can be set.

We will begin by taking a look at where we are now. We will then turn to the need to define and delimit the task ahead, for it would be as easy to overestimate as to underestimate its dimensions, and resources are not unlimited. Finally, we will discuss some general, but very relevant issues which must concern the modern vocational curriculum planner.

Where We Are Now

Curriculum development in vocational education is now perceived chiefly as the process of preparing and producing instructional materials. These materials usually take the form of a syllabus or similar type of content document outlining what to teach in a particular occupation. Sometimes suggestions for equipment and facilities required to teach the course are also included. Many such materials are prepared by individual teachers or groups of teachers on a local basis for local use. There is no way to know how much instructional material of this kind exists because 't is not usually available for distribution. Some states, and some universities have curriculum centers which develop and produce limited kinds of materials. The United States Office of Education has produced a certain number of publications relating to curriculum, but its funds have been inadequate for any important contribution. The major sources of instructional materials for vocational education are the commercial publishers and the manufacturers of specialized teaching devices which are popular with many teachers for teaching certain occupations. For instructional materials vocational educators must continue to rely chiefly on the commercial producers. Certainly there is no justification for establishing, with public funds, any competing enterprises for developing and producing instructional materials, and the wording of the Vocational Amendments Act does not seem to contemplate such an activity.

In any case, the most serious need is not the production of teaching materials. The real problem is the continuing tendency to confuse instructional materials development with curriculum development.

Curriculum is the sum total of the learning experiences for which the school has responsibility, whether they occur in school or not. To plan a curriculum means to select, arrange and sequence these experiences, through the joint decisions of teachers and learners, so that successful learning results. In vocational education, as in other areas, this requires that learning outcomes be clearly defined, in behavioral terms, and suitable evaluative devices designed to measure their achievement. Vocational educators will find this increasingly difficult to do, because vocational success in our society is so dependent upon general educational development that the skills of work often cannot be identified from other life skills. The laundry list of job operations and related technical information that was once considered the standard content for vocational courses is now quite inadequate. If we direct our efforts at this level in attacking our curriculum needs, we shall be wasting our time and our new resources.

Vocational curriculum planners, like others, must start with basic educational decisions which lead to sound educational policies. These decisions must take account of at least four major determinants. These are the nature and needs of our society, the nature and needs of the learner, the nature of the learning process, and the nature and role of the teacher. Vocational curriculum makers should apply the best knowledge available about all of these in order to help people achieve useful, satisfying work lives. Until this kind of planning takes place there is no need to concern ourselves with materials or methods, to evaluate existing materials or recommend new ones.

The Size of the Task

Before we can estimate the magnitude of the curriculum task we need to re-examine carefully some current assumptions about vocational education.

It is often defined as that education or training that leads directly to a job. This is taken to mean that nothing that does not prepare an individual for a given job can be considered as vocational education. In fact this statement is made in an editorial in the January 1969 issue of the American Vocation Journal. This same editorial page states that vocational education now has the responsibility for occupational education for all persons who do not attain a baccalaureate degree. Now if we accept both of these assumptions, exactly what would this mean in practice?

To begin with, how are we to know ahead of time who will terminate his education at what point -- who will complete a baccalaureate degree and who will not? And if we could know, are we to suppose that every such person is at some point to be enrolled in vocational courses, in a vocational school or program? How many thousands (not hundreds) of occupations would have to be included in vocational programs if this was to be attempted? How justify the fantastic costs of duplicating, in school settings, the environment, facilities, and equipment to train for these thousands of different jobs, to say nothing of the huge number of teacher specializations? Is it not true that the great majority of jobs in our economy can never be taught in school, but can be learned only on the job? As we try to answer these questions we begin to see that we must modify some of the grandiose and extravagent statements about the task of vocational education which are now finding their way into print. If it is true, for example, that twenty per cent of our young people complete a baccalaureate degree, we are not entitled to conclude that all the rest, or any major part of them, should be enrolled in a vocational course. Yet this argument has been repeatedly advanced in recent statements. It reflects simplistic and uncritical thinking.

In the vocational technical centers and area schools being established at the present time the course offerings are typically limited in number, traditional and stereotyped. A center which offers preparation for as many as twenty occupations is unusual and among these the long established trades and mechanical occupations predominate. So long as a small percentage of students enroll in vocational courses, and, fewer still complete them, the discrepency between the distribution of jobs in the real world and the jobs represented in vocational programs is not apparent. However, if the numbers entering and completing such courses should increase greatly, the gap would be glaringly evident. Vocational educators should think twice before they advocate vocational education in its present form for all youth who do not go to college. However, they are not likely to be called upon to undertake such a program.

We shall have to determine clearly what job training can best be done by industry, business and government employers, and what can best be done in schools. It will be found that most jobs can be learned only on the job, not in schools. To serve all who need preparation for work, vocational educators will need to form educational partnerships with business, industry and government so that most of their students can receive their vocational training on the job, while they are still students or immediately upon leaving school. This may call for waivers on minimum wage requirements for learners, or stipends to business and industry to offset the lower productivity of the learner, or both. We have precedent for this in the OJT aspect of Manpower Training. It may have to be more widely adopted. For as Leon Minear has said, "We must discard the idea that all publicly subsidized vocational education must take place in a school under the direction of a certified teacher."

Vocational Curriculum and the General Curriculum

We will be misguided if we proceed with vocational curriculum planning as if it had no relation to the rest of the curriculum. Vocational education is just a part of the total education of the individual. It cannot be designed and it cannot function apart from the rest of his education. Curriculum workers from other areas of education should participate actively in the further development of vocational curriculum. Congressman Roman Pucinski, a leading proponent of vocational education in congress said in a recent speech:

> "We have to intermesh the vocational with the academic to make pupils flexible and adaptable in a changing world to be self reliant and to comprehend the impact of technology on history, on social processes, and on economic growth and change."

Certain generalized skills which in the past have not been the responsibility of vocational education have now become so, because they are necessary to hold and perform a job. Among these are functional competence in reading, in written and oral expression, and the use of the basic mathematical processes. The skill of weighing evidence and forming judgements is required in many jobs. Many jobs call for social and human relation skills more than any other. Therefore vocational education must share fully in their development, and curriculum planners must include them in their planning.

Career Planning and Vocational Education

Career orientation and career planning are a part of vocational education. At present they are treated as something that precedes vocational education. Vocational educators continue to think that their task begins only after career planning has been done and a career choice made. They have long been concerned because career orientation in schools has been ineffective, but on the whole they have considered it to be the responsibility of others. They have expected that career orientation and guidance would bring them students interested in the occupations they teach and well qualified to succeed in them. That is, they have viewed career planning as a recruiting and selection device, conducted by other school personnel. They have nearly always been disappointed in the results because of failure to recognize that choosing an occupation and learning an occupation are inseparable parts of the same process. There is a continuum here that does not permit separation into discrete stages. Vocational educators cannot continue to assume that guidance counselors are responsible for career orientation, and then stand aside and wait for properly oriented students to arrive on their doorstep, ready to be trained.

The federal vocational education acts of 1946, 1963, and 1968 have all provided funds and authority for vocational educators to enter actively into the area of career orientation. Yet it has never been done. Now vocational curriculum makers must make it a matter of first priority. A policy which assigns to vocational education a supplementary or advisory role rather than a major responsibility for career orientation is a mistaken policy. There is no area of education that has a greater stake in the process of career planning and orientation. To suggest, as has been done recently that this is a secondary concern of vocational educators, and should not make undue demands upon their resources, is irresponsible. In discussing it, Congressman Pucinski said recently,

> "Vocational education has substituted sheer job-skill training for genuine career development. There is a vast difference between these two orientations."

We would be justified in directing most of our vocational curriculum efforts below grade twelve toward the area of career education and planning rather than preparation for particular occupations. This is strongly suggested by the findings of Project Talent. This study shows that in following up the career plans and choices of 400,000 boys who expressed their career plans in grade eleven, seventy-five percent of them had changed those plans substantially four years later.

The Involvement of Teachers

Curriculum cannot be separated from instruction, and therefore from teachers. It has long been customary for many vocational teachers to be active in curriculum development, often because they were the only real experts in their subjects. More recently, many other teachers have taken a renewed interest in curriculum decision making, and their active participation is now frequently sought when teacher organizations negotiate their privileges and benefits with school authorities. Vocational curriculum development must involve teachers fully at every stage.

Curriculum decisions made by so-called experts and passed along to teachers have seldom found their way into classroom action. The greatest dust collectors on the classroom shelves have been the well intended course outlines, teachers guides, and similar materials prepared by curriculum specialists. The only curriculum a teacher is likely to take seriously is one he has helped to plan. The more competent and professional the teacher, the more this will be true. Vocational funds spent to improve instruction through curriculum development will have little effect unless the teacher has a leading part in the process. This means that curriculum improvement must be closely coordinated with teacher education and calls for the greater professionalization of vocational teachers. Vocational teacher education has often placed too much emphasis on occupational skills and too little on other professional competencies in selecting and training teachers. In the future, if vocational teachers are to contribute as they should to curriculum improvement, they must possess a better balance of professional qualities.

Summary

The task ahead for vocational curriculum improvement is a large one, but its dimensions are not so much in numbers as in quality and new directions. To meet its responsibilities, vocational education will need to do more than just serve more people. It will have to re-think its purposes and realize that it can achieve its time honored goals only by making them relevant to today's world and the fast approaching world of tomorrow. This will involve not just more, but different and better vocational education. To put it plainly, the demand is for real reforms and sharp departures from the past, not so much in goals as in means for reaching them. We have new resources with which to work. We had better use them wisely.

Baker Hotel
Dallas, Texas

National Conference
March 6, 1969

Curriculum Development in Vocational and Technical Education

EVALUATION OF CURRICULUM MATERIALS AND THEIR USE

W. James Popham
Center for the Study of Evaluation
University of California, Los Angeles

What the classroom teacher has always known is now being perceived by an increasing number of influential American educators, namely, that the single most important determiner of the curriculum is the set of curriculum materials on which instruction is based. Of course there are some teachers whose instructional efforts are carried on almost apart from curriculum materials. But for most teachers the text book or its equivalent is the prime mover with respect to what happens instructionally. This state of affairs should surprise no one. Teachers are usually human. And most human beings adopt the route of least resistance in coping with any kind of problem. The easiest course of action for a teacher to take in discharging his instructional responsibilities is to adopt the ready-made structure provided by curricular materials.

These observations regarding the influence of curriculum materials have not been made to denigrate the practices of teachers, only to accentuate the importance of evaluating such materials properly. Since the influence of curriculum materials is enormous, any evaluation of them must be commensurate with their potential impact.

Common Criteria

How are curriculum materials currently evaluated? It would be inappropriate to attach the label "systematic" to the manner in which curriculum materials are judged these days. While unsystematic, however, it is possible to isolate certain criteria which are employed by materials evaluators.

The Content Criterion. When an educator considers the possible adoption of a new curriculum artifact, for example, a textbook, filmstrip, or recording, a chief factor used in making that decision is the adequacy of the content. Is the content of the textbook, for instance consonant with the best current thinking of experts on the topic? Suppose that a new text in electronics is available which advocates an approach to troubleshooting that is passe. Obviously the potential user will be reluctant to adopt an outmoded point of view. But that is a fairly obvious situation. There are invariably instances when the potential user's own preferences regarding what content emphases are most crucial will in- influence the evaluation of curriculum materials. "Did the illustrated filmstrip on the principles of carburetion emphasize the things I believe important?" This is the way a teacher might phrase such a question. For years, the content criterion has probably been the most influential factor in evaluating curriculum materials.

The Cosmetics Criterion. Another factor which affects the evaluation of curriculum materials is the manner in which the materials are packaged. Are they attractively put together? Cleverly illustrated? Are the figures and graphs easily understood? Such questions figure prominently in the evaluation of curriculum materials made by many educators.

The Charisma Criterion. Although charisma is usually associated with the political arena these days, there are authority figures in all fields whose prestige alone can positively influence the evaluation of curriculum materials. Merely because a text was written by a super-stature specialist in the field is sufficient for some evaluators.

Thus we find prominent among current criteria those of content, cosmetics, and charisma. It is distressing to realize that considered separately or as a pooled collection these criteria are completely inadequate for the proper evaluation of curriculum materials.

A Defensible Criterion

The most defensible criterion by which to judge the adequacy of curriculum materials is the degree to which those materials, if used as directed, can consistently bring about desired changes in the behavior of the intended learners. If one grants the assumption that the principal purpose of instruction is to promote desirable modifications in the behaviors of learners, then it seems only reasonable that to be considered valuable, curriculum materials must be of assistance in that endeavor. To use such a criterion with any rigor, we must be concerned with measurable, not ephemeral, modifications in learner behavior. We must know precisely how we want the learner to behave after interacting with the curriculum materials, then see if he can behave that way.

Schematically, we can represent this approach to the evaluation of curriculum materials as follows:

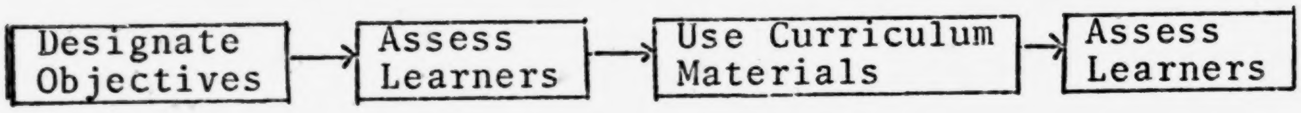


Figure 1. A Scheme for Evaluating Curriculum Materials

The first step is either to construct or select a set of operationally stated instructional objectives which it seems reasonable to expect the curriculum materials to accomplish. Measures of pupil performance based on these objectives must also be prepared or selected. The second step is to assess the degree to which the learners can already perform the behaviors delineated in the intended objectives. This pretest is crucial to establish clearly that prior the interaction with the curriculum materials the learners could not already display the intended behavior changes. The next step is to allow the learners to use the curriculum materials as directed by the developer of those materials. The matter of usage is becoming increasingly important, for if materials are to be used with immense variablility, we should not be surprised if the results of their use are also tremendously variable. Those concerned with the development of curriculum materials are now being urged to specify the essential ingredients of the procedures which they hope will be employed by users of the materials. The final step involves posttesting learners to see whether the objectives have been achieved.

Returning to the previously discarded criteria we can see that considerations associated with the content, cosmetics, and charisma are encompassed by a focus on the outcomes of instruction. To illustrate, we may want a learner to display a behavior which is consistent with the best that is known in a field at the moment. If a test's content is inappropriate it seems unlikely that the hoped-for behavior will emerge. Similarly, cosmetic considerations may or may not be relevant to the learner's attainment of a given objective. In some cases pretty pictures may distract rather than abet. And we all know that even the most prestigious of authorities can turn out an inadequate textbook. All three of these considerations, then, are inappropriate because they are related to the means, not the ends, of instruction. A proper evaluation of curriculum materials must focus on whether materials produce worthwhile behavior changes in the learner.

Implementation

The specifics of how such an approach to evaluation would be carried out in the schools is beyond the scope of this paper. The best treatment of the topic is still the report[1] prepared a few years ago by a joint AERA-APA-DAVI Committee dealing with the utilization of programmed instructional materials. Just a few approaches will be mentioned here.

Evaluation Based on Publisher Data. Ideally, the publishers of curriculum materials would supply potential users with (1) sets of behaviorally stated objectives their materials were designed to accomplish (2) specific directions for use of the materials, and (3) validation data based on tryouts of the materials with learners whose characteristics were clearly explicated. Then, the potential user could judge the similarity between his learners and those in the publisher's field tests and decide whether the probable success was sufficient to warrant his acquisition of the materials. But much economic pressure will have to be brought to bear on commercial publishers before they routinely produce such data.

---

[1] American Educational Research Association, American Psychological Association, Department of Audiovisual Instruction, Joint Committee on Programmed Instruction and Teaching Machines, February, 1963, Audiovisual Instruction.

Evaluations Developed by Neutral Agencies. One of the more interesting developments concerning the evaluation of curriculum materials has been the establishment of the Educational Products Information Exchange (EPIE) Institute, an independent, nonprofit organization chartered in 1967 to serve educational decision-makers in schools and industry by supplying information about the availability and effectiveness of instructional materials and equipment. While the publications of EPIE since its establishment (under an original grant from the U. S. Office of Education) have focused largely on the evaluation of educational equipment (particularly of an audio visual nature), the institute plans to undertake systematic evaluations of educational curriculum materials as well. Thus far the majority of their publications regarding curriculum materials have unfortunately been descriptive rather than evaluative. With the October, 1968 issue the institute's journal (formerly called the EPIE Forum) is now known as the Educational Product Report.[2] It is reasonable to expect that if EPIE and similar organizations emerge, they will provide educators with something akin to a Consumer's Report for curriculum materials and related products. Such reports, if systematic, sensitive, and objective, should clearly be of considerable utility in choosing among competing curriculum materials.

---

[2] The Educational Product Report is published nine times a year by the Educational Products Information Exchange Institute, 386 Park Avenue, South, New York, N. Y. 10016.

The generally beneficial impact that programmed instruction has had on the quality of student learning has provided measurement and evaluation personnel with a number of problems regarding the manner in which the attainment of educational outcomes should be assessed. Of particular interest are those investigations concerned with the difference between norm-referenced and criterion-referenced measurement approaches. These approaches are being employed by material developers themselves.

Evaluation by the User. For the time being the user will probably be the one called on to do most of the evaluation of curriculum materials. This will require the identification of specific objectives, suitable measures, and a thorough committment to an ends-oriented, i.e., criterion-referenced approach to evaluation. A school or school district would have to first purchase a modest number of the curriculum materials, then conduct its own field trials, prior to making a major purchase. But to do this systematically in all districts is a Herculean effort. We must make it easier for educators to engage in criterion-referenced instruction and evaluation.

Criterion-Referenced Instruction[3]

As indicated earlier, criterion-referenced instruction focuses primarily on the degree to which the learner can perform specified criterion behaviors. For example, in preparing instructional materials the developers decide what to revise on the basis of learner performance data, not according to the judgment of consulting experts. Or in another situation, a school district decides to select one set of supplementary reading texts instead of another because of pupil performance on related criterion tests, not because one set of texts is more attractively illustrated than the other. Such examples accurately suggest that a primary feature of criterion-referenced instruction is a preoccupation with the results of instruction, not the procedures used to promote them. It reflects an ends-oriented approach to instruction rather than means-oriented approach. Since most educators concur that the ultimate index of an educational program's worth is the degree to which it benefits the learner, the increased support of criterion-referenced instructional approaches is gratifying.

---

[3] The remaining remarks are based on a symposium presentation at the Annual American Educational Research Association Meeting, Los Angeles, February 5-8, 1969.

But against the increasingly supportive backdrop, it is distressing that very few large-scale criterion-referenced instructional operations are underway. Verbal support is there. Widespread practical implementation there is not. Why?

A Time-Consuming Task. The principal deterrent to expanding the extent of criterion-referenced approaches used in the nation's schools is fairly easy to identify. Developing criterion measures of sufficient quality and satisfactory breadth is too much work for most educators. Developments regarding the use of behaviorally stated educational objectives may be instructive here.

Much of the recent agitation regarding the desirability of describing instructional objectives in terms of measurable learner behavior is based on the belief that operationally stated objectives will more readily permit educators to assess the impact of instruction where it should be assessed, namely, in modified learner behavior. But many proponents of operationally stated educational objectives are beginning to complain about the paucity of such objectives in the schools. Educators can be informed of the merits of behaviorally stated objectives; they can be taught to state objectives properly; they can even become quite enthusiastic about the desirability of stating objectives behaviorally. But few of them do it. The reason is not unwillingness but, instead, reflects a lack of wherewithall. Teachers are already too burdened to find the time to develop operationally stated objectives for their classes. School districts have already committed their increasingly limited resources to other tasks. In those isolated instances where there has been an effort to develop precise instructional objectives on a large scale, the participating educators will readily admit how taxing the enterprise has been.

Imminent Duplication. The financial and personnel costs of the isolated projects to develop instructional objectives points up another problem. In spite of the difficulties associated with the development of explicit objectives, some districts are undertaking the task. For example, several months ago the Clark County, Nevada School District developed a set of behaviorally stated objectives for mathematics instruction, grades K through 6. There are other examples of such endeavors in various parts of the U. S.

The absence of any scheme through which one district could become aware of the existence of similar developmental projects makes it probable that a distressing amount of duplication will occur among those few educators who are zealous enough to attempt the development of precise instructional aims. For instance, more than a year after the Clark County, Nevada schools had completed their preparation of K-6 instructional objectives for mathematics, two districts in different states commenced work on precisely the same project. They were unaware of the Clark County objectives. The wheel was about to be re-invented.

Not that the Clark County objectives would satisfy all districts; undoubtedly there would be modifications. But the energy that could be saved nationally by adapting extant sets of objectives rather than starting from scratch, is incalculable. For example, several of the USOE-supported regional laboratories are investing significant resources in encouraging educators to develop operationally stated goals. The probable overlap between such efforts and similar projects initiated by local districts is considerable.

Objective-Generators and Objective-Selectors

It has become increasingly clear to those who have been promoting the use of operationally stated objectives that it may be expecting too much to ask already harassed teachers and administrators to generate their own objectives. It is an arduous task and, although the teacher may be willing to state his objectives behaviorally, under present conditions most teachers just can't find the time to do it. But though objective-generation may be too demanding, objective-selection should not be. If the instructor's task were simply to choose from comprehensive sets of operationally stated objectives those which he wished to achieve, his task would be manageable. He could follow through on his commitments to precisely explicated goals without being obliged to construct all such goals himself. But, obviously, someone needs to construct the objectives from which he can select.

Local Option. Under any scheme in which the educator is the selector rather than generator of objectives there may be some concern regarding the degree to which the objectives will be "imposed from above." A viable objectives selection scheme, however, should permit just that-- the selection of objectives. If particular objectives are not preferred, they are not selected. If all of the objectives are not available which the selector favors, he can always generate additions. Having selected the bulk of his goals from those prepared by others, such an objectives generation task should be manageable. Local autonomy in the selection of objectives should be an integral part of any objectives selection scheme. The availability of objectives from which to choose should increase the educator's range of alternatives, never decrease his self-direction.

Objectives Plus Criterion Measures

Another factor which has not been perceived by all advocates of precise objectives is that they may be necessary, but by themselves they are far from sufficient. Too often even a behaviorally stated objective may be used as window dressing for "instruction as usual." A precise objective can be most helpful when planning an instructional sequence, since there is clarity regarding the intended post-instruction competencies of the learner. But an explicit objective becomes even more useful when we evaluate an instructional sequence. This can be accomplished by ascertaining the degree to which the objective has been achieved. To perform the latter function we need measuring devices based explicitly on the objective. A criterion-referenced approach to instruction requires criterion measures.

Few districts have made this logical jump from the development of objectives to the necessity of developing test items. And "test items" here is used in the broadest possible sense, for example, including observation of learner behaviors reflecting a host of cognitive as well as non-cognitive outcomes. If it were possible for school districts to have access to sets of objectives plus test items from which they could choose, then after selecting certain objectives the district could readily assess the degree to which its instructional approaches were successful. A teacher could evaluate his success in achieving his goals. The existence of a pool of test items for each objective would really encourage educators throughout the nation to initiate criterion-referenced instructional strategies.

The Instructional Objectives Exchange

Therefore, to encourage increasing numbers of educators to adopt criterion-referenced instructional strategies and to reduce the probable overlap in objective development efforts, the UCLA Center for the Study of Evaluation has established the Instructional Objectives Exchange which will serve as a national depository and development agency for instructional objectives and related measurement devices. The Exchange will perform the following functions:

1. It will serve as a visible clearinghouse which can be used to keep abreast of the diverse instructional objectives development projects throughout the nation.

2. It will provide a bank-like agency whereby a school district (or comparable educational agency) can"draw out" all objectives and relevant measures for as many subjects, grades, topics, etc. as desired.

3. It will continually update, refine, and expand the pool of objectives and measures for each field covered by the Exchange.

The potential impact of such an Exchange, readily providing pools of objectives and test items from which districts can select, should not be underestimated. With competent staffing, a careful developmental plan, and proper dissemination strategies, the Exchange could conceivabley alter the nature of instructional practice in America.

Operation of the Exchange

Briefly, this is how the Exchange will function. First, an attempt will be undertaken to make as many educators as possible aware of the existence of the Exchange and the service it provides. We have already distributed nationally news releases, magazine articles, letters to school districts, thousands of descriptive brochures, etc. Contained in this literature describing the Exchange is a request that any school district or comparable agency which has developed behaviorally stated instructional objectives contribute those to the Exchange. We are currently in the process of collecting the initial sets of these objectives, and while it is too early yet to say how many collections of behaviorally stated objectives exist throughout the country, there are encouraging indications that there may have been more projects focused on the development of precise objectives than we had anticipated.

As this collection activity progresses, the staff of the Exchange will concurrently be developing objectives and related item pools, particularly in those areas where we find few satisfactorily stated objectives. We are now refining our procedures for developing properly stated objectives and criterion-referenced items which accurately reflect the attainment of such objectives. Although our early efforts have quite naturally found us emphasizing cognitive objectives, we hope to move soon to the development of a variety of non-cognitive goals. Our current developmental activities are in the fields of mathematics, language arts, and social studies.

After we have developed or collected a respectable number of objectives and related items, the Exchange will make these available to the schools. A school district will identify the fields and grade levels in which it is interested, then receive the entire collection of objectives suitable for those areas. The district will then select the objectives appropriate for its peculiar instructional situation and will receive a pool of measurement items for each objective selected. We hope to provide a series of categorization rubrics which will aid local school personnel in the selection of appropriate goals. Since we anticipate that the objectives retrieval system will be computer-based, a host of interesting categorization possibilities should be available.

Since the Instructional Objectives Exchange is a project of the UCLA Center for the Study of Evaluation, we will be particularly attentive to the manner in which educators employ the Exchange system for evaluative purposes. A major project of the Center is devoted to the appraisal of this system in terms of the relationship between objectives, instruction, measurement, and evaluation.

Although there are important procedural details which will not be discussed here because of space limitations, the foregoing remarks should provide a general idea of how the Objectives Exchange will function.

While the Instructional Objectives Exchange approach, if implemented in the fields of vocational and technical education, would facilitate more defensible evaluation of curriculum materials, there is undoubtedly a prior consideration. We must first expand the number of influential educators who support this approach to evaluation, for without vigorous advocacy of newer evaluative schemes, surely the old, inadequate approaches will prevail. For the sake of the thousands of students engaged in the study of vocational and technical education, superior methods of evaluating curricular materials must be adopted.

Baker Hotel
Dallas, Texas

National Conference
March 5, 1969

CURRENT TRENDS IN CURRICULUM THEORY AND DEVELOPMENT

Louise L. Tyler

University of California, Los Angeles

Titles of papers can be misleading as can the titles of books or films. In order for you to have some notion as to what this paper is to be about, the key terms and relationships between the terms needs to be clear.

However, for me to clarify completely what is meant by the title necessitates my reading this paper. Only after hearing the paper will you know what is meant by current trends in curriculum theory and development. What I can do though at this point is to make the following brief comments concerning the title. I will discuss current trends in two areas, (1) curriculum theory, and (2) curriculum development. By current, I mean right now. To give a precise definition of curriculum -- (to which there would be little agreement) is not very useful. Instead, I am going to specify some of the commonplaces of curriculum about which this paper deals -- (about which there will be much agreement). Some of the commonplaces put in the form of questions are:

1. Who has the authority and responsibility for making decisions about the ends and means of schooling?
2. What are the ends-means of schooling?
3. What kind of information is used for the basis of making decisions?
4. How can decisions about ends and means be made?

Before proceeding to a discussion of the two major areas of curriculum theory and curriculum development, a few preliminary comments must be made. First, I am assuming the school's basic function is to facilitate maturity. Second, I am assuming that every individual is worthy of education's thoughts, concerns and endeavors. Third, little is known with certainty about either curriculum theory or curriculum development. Fourth, the ends and means of vocational and technical education in American education have not yet been blue-printed. Fifth, that education, and consequently curriculum, is an art based upon science. Sixth, that all of us here have the attitude that we are "masters of our fate" and that we can change the world.

I would like to close this section with a brief passage from a speech of Harold Howes':

> "Of the many hats the Commissioner of Education must wear, the one I have chosen for this occasion is that of an agitator. Now an agitator is one who takes people who are contented with their lot and makes them dissatisfied. In the narrow sense, I suppose the word is almost always used as a sign of reproach. It should not be. An agitator is also a person with a sense of mission - who insists that things as they stand are not good enough.
>
> If we are to take any of the education legislation passed by Congress during the last four years seriously, all of us must get a little bit of the agitator in our blood. That is what the legislation calls for. It insists that school people push out wider borders, grow and move and explore new domains.
>
> No act of Congress can by its working bring about this kind of movement and change. What the legislation can and does do is give education an opportunity to stretch and change itself by creating new options for people at all levels and in all specialities - the teacher, the principal, the superintendent, the school board, the university president."[1]

I

Current Trends in Curriculum Development

For reasons which I hope will become clear later, I am going to begin with the matter of curriculum development.

What is involved in curriculum development? In the development of curriculum, decisions must be made at least about the commonplaces of:

1. objectives
2. learning opportunities
3. organization
4. evaluation
5. staff

For three of these commonplaces, the current situation will be presented with some indication of issues, questions and possibly fruitful ways of proceeding.

1. OBJECTIVES

Under this rubric of commonplaces, there are many questions that are of significance and must be dealt with if curriculum development is to be rationally done, however, only three will be elaborated upon. These three are:

1. What procedure should be utilized in the process of formulating valid objectives?
2. How should objectives be stated?
3. Are objectives needed?

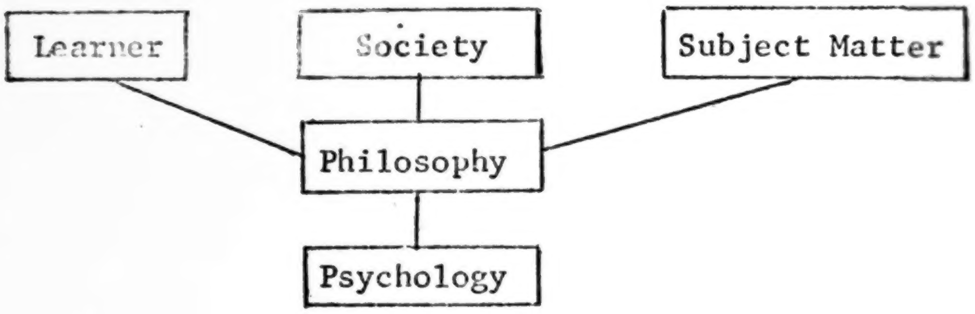
Procedure for Formulating Objectives

At the present time, there are two conceptions for formulating valid objectives. One is that which appears in Ralph Tyler's, Basic Principles of Curriculum and Instruction,[2] and the other appears in the Goodlad publication, The Development of a Conceptual System for Dealing with Problems of Curriculum and Instruction.[3]

Tyler's syllabus in 1950 was the first attempt to spell out in some detail a rather elaborate procedure for formulating significant objectives. This 1950 syllabus presents a rationale for analyzing a curriculum and instruction program. Tyler's rationale identifies four fundamental questions which must be answered in developing any curriculum and plan of instruction, namely:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be efficiently organized?
4. How can we determine whether these purposes are being attained?

It is, however, with the first question: What educational purposes should the school seek to attain?, that we are concerned now. This process as conceptualized by Tyler can be diagrammed as follows:



If we return to the first box labeled learner, Tyler indicates that a study of the learners should help to identify needed changes in behavior patterns. However, he states that studies of the learner suggest educational objectives only when the information about the learner is compared with some desirable standard so that the difference between the present condition of the learner and the acceptable norm can be identified. This difference is a gap or a need. Objectives are formulated to remedy the gap. As Tyler points out, the same data can be subject to various interpretations in light of acceptable norms.

> "For example, the discovery that 60 per cent of the boys in the ninth grade of a certain high school read nothing outside of school other than comic strips might suggest to some unimaginative teacher that the school needs to teach these boys how to read comic strips more rapidly or with greater satisfaction. One the other hand, to another teacher this would suggest the limitations of the reading interests of these boys and the need for setting up objectives gradually to broaden and deepen these reading interests"[4] (Tyler, 1950a).

Also, Tyler comments:

> "You can see how the norms, that is, the philosophy of life and of education which guides the teacher, enter into the interpretation of data of this sort"[5] (Tyler, 1950a).

In addition to studies about particular age or grade or students in a particular area, it is important to look at data about students which is common to most children of an age level whether they are rural or city, one social class or another, one ethnic group or another. Tyler's rationale for formulating objectives then requires that society and subject matter must also be used as a base for formulating objectives. After these three sources are utilized as sources then two screens, philosophy and psychology, must be employed. Philosophy is utilized in order to eliminate inconsistencies, inconsequentials and psychology is utilized to determine feasibility, compatibility, and specificity of objectives.

There is considerable misunderstanding about the Tyler rationale in its various aspects, however, one misunderstanding must be presented because of its primacy. This has to do with whether the sequence of steps to be followed is as presented in the syllabus. Tyler states unequivocally, "No." As he indicates:

> "The purpose of the rationale is to give a view of the elements that are involved in a program of instruction and their necessary interrelations."[6]

However, while curriculum formulation or revision can be initiated at any point in the sequence, the entire sequence must be utilized. Also, there is really little value in beginning with psychology or philosophy because the essential point of using them is to screen out objectives which have been formulated. Furthermore, if one began with selection of learning experiences it would appear rather wasteful if the objectives being used as data for determining learning experiences had been inadequately formulated.

Goodlad's formulation of the question of purposes is somewhat different from Tyler's (Goodlad, 1966). Goodlad proposes turning to values[7] first, then derivation of educational aims from values, educational objectives from educational aims, and learning opportunities from educational objectives.[8] Goodlad indicates that the process of deriving educational aims goes back first to selection among values. In addition, he proposes turning to values as the primary data-source not only for selecting purposes but as a data-source in making all subsequent decisions. Goodlad's argument runs somewhat as follows. A completely value-free position is impossible, that when one turns to an examination of characteristics of society in seeking to formulate objectives, one's values are likely to guide him to some characteristics and not to others. Therefore, it is desirable to admit to these value positions at the outset. This same argument would follow for the learner and society and all the other aspects involved in curriculum decision making. Unfortunately, Goodlad has not elaborated the process in a detailed enough manner so that this idea is comprehended. What the process actually involves is not clear. Goodlad has one illustration which helps to some extent. He indicates:

> "A person is selecting a value and stating an educational aim when he says that education (not necessarily the schools or the schools alone) should develop the potentialities of all individuals, respect for the rights of others, persons who know and accept their states in life, an appreciation of the cosmos, and so on" [9] (Goodlad, 1966a).

Goodlad also states that although values suggest ends and educational ends suggest learning opportunities that there is a crucial difference between suggesting and logically implying. And furthermore that in making deductions, certain assumptions are made which are not obvious. Then Goodlad points out that the most serious difficulty in contemporary curriculum planning is a failure to begin with a set of value premises and to inform various specialists of value decisions already made. Goodlad, however, also indicates that a philosophic screen is valuable in selecting from among possible educational objectives, and elaborates that:

> "It is, in fact, a useful way of checking on the amount of 'slippage' or irrationality that might have occurred in the supposedly rational process of deriving educational aims from values and educational objectives from these aims, a process not specifically identified by Tyler which we think to be central in curriculum planning. Values and philosophical positions inevitably enter into all steps in curriculum planning; many alternatives already will have been consciously or subconsciously ruled out by the time of Tyler's proposed screening. Therefore, we recommend similar formal and informal checks at all major decision-making points so that, hopefully, the selection of ends and means will be compatible with the values initially espoused. Curriculum planning involves more than seeking data. It involves rather, the sensitive utilization of values and data simultaneously"[10] (Goodlad, 1966b).

At the point of formulating educational objectives, Goodlad incorporates the Tyler sequence of learner, society, subject matter, philosophy and psychology. In addition, Goodlad has formulated the notion of levels of decision making, namely the societal, the institutional and the instructional. The decisions at the societal level have an impact on the institutional and the institutional on the instructional.

It is clear that Goodlad's formulation is a more comprehensive one (and consequently more adequate) than the one published by Tyler in 1950. The primary issue between these two conceptions seems to have to do with the place of philosophy in the process. From my point of view, I think the Goodlad conception is more adequate. An important task, therefore, for any curriculum group is to utilize the Goodlad procedure for formulating objectives.

How Should Objectives Be Stated?

The matter of stating objectives has been an issue for several years. There have been innumerable articles indicating the desirability of stating objectives and an indication of how they should be stated. Currently, there are three suggested ways for stating objectives. Ralph

Tyler indicated:

> "The most useful form for stating objectives is to express them in terms which identify both the kind of behavior to be developed in the student and the content or area of life in which this behavior is to operate. If you consider a number of statements of objectives that seem to be clear and to provide guidance in the development of instructional programs, you will note that each of these statements really includes both the behavior and the content aspects of the objective."[11]

An objective stated according to Tyler's notions would be as follows: to write clear and well-organized reports of Social Studies Projects.

A second way of stating objectives is that presented by Robert F. Mager in Preparing Instructional Objectives.[12]

According to Mager, there are three items that might help an objective to be more specific although it will not be necessary to include all three in each objective. These three are:

First, identify the terminal behavior by name; you can specify the kind of behavior that will be accepted as evidence that the learner has achieved the objective.

Second, try to define the desired behavior further by describing the important conditions under which the behavior will be expected to occur.

Third, specify the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable.[13]

An acceptable objective in the light of these criteria would be the following:

> Given a human skeleton, the student must be able to correctly identify by labeling at least 40 of the following bones; there will be no penalty for guessing (list of bones inserted here).[14]

A third way of stating an "objective" is that suggested by Elliott Eisner.[15] Eisner is interested in what he terms expressional objectives. According to Eisner:

> "An expressive objective does not specify the behavior the student is to acquire after having engaged in one or more

> learning activities. The expressive objective describes an educational encounter: it identifies a situation in which children are to work, a problem with which they are to cope, a task they are to engage in -- but it does not specify what from that encounter, situation, problem or task they are to learn. The expressive objective provides both the teacher and the student with an invitation to explore, defer, detour, or focus upon issues that are of peculiar interest or import to the inquirer."[16]

An expressive objective as stated by Eisner would be: To examine and appraise the significance of The Old Man and The Sea.

My reactions to these various ways of stating objectives can be briefly indicated. Tyler's formulation is the most desirable way to specify objectives for most curricular and instructional decisions. Mager's original formulation of statement of objectives was made with regard to programmed instruction and possibly his criteria were appropriate for that kind of instruction. Even though he has modified the notion that all three criteria must be met, these criteria are limiting and are not concerned only with the question of outcome but also that of instruction and evaluation. The Eisner formulation is, even in his own words, not a statement of the behavior the student is to acquire -- consequently not an objective. It is a statement about a learning opportunity. Tyler's formulation is the only adequate formulation.

Are Objectives Needed?

This is a very profound, complicated question with which to deal. And obviously, it cannot be thoroughly examined here at this time. Those in curriculum who think that objectives must be formulated are individuals who think in terms of ends-means. Even some of us who are ends-means thinkers, believe that children also ought to be involved in the formulation of their objectives. Regardless of who formulates objectives, stating them as Tyler suggested is essential. However, as far as I am concerned, and I am an end-means thinker, would it not be desirable if some objectives might emerge from activities which students engage in and which have been selected because they are exciting, novel or profound?

I'm not any clearer about this idea than that which I've just expressed. I think I accept some of John Dewey's notion that school is life. Well, life hasn't been programmed, at least not yet, not for me and from life we formulate goals. Possibly, school and the curriculum should make this possible, too.

2. LEARNING OPPORTUNITIES

By learning opportunity is meant a situation which is so arranged that the student has the possibility of engaging in the desired behavior. Some examples might be, the provision of a field trip, the setting in which a student can perform an experiment, the setting in which a student can design an art product, the viewing of a television program.

The basis for selection of learning opportunities is very complicated for many reasons. One reason is that the factors involved in the selection of learning opportunities have not been adequately suggested. And even if some of the factors are known, e.g., the role of the media as a factor which must be considered in selecting learning opportunities, little is known about the specific factors. Paul Saettler, in Review of Educational Research, April 1968 on Instructional Materials: Educational Media and Technology, states:

Summary and Conclusions

> "This review has provided a historical perspective by describing the pattern of media research during the past half century and has shown the prevailing experimental design to be the media comparison type of study. Apart from the serious methodological problems associated with much of this research, as a whole it has had only peripheral relevance to media-message design. Comprehensive theoretical and experimental bases are lacking for such design. In view of these limitations, only those theories, models, and experimental investigations which appear to suggest some basis for a technology and science of instructional message design and analysis have been selected for review.
>
> The period under review has been distinguished by an increasing recognition of the need for a systematic, scientific approach to instructional design. What we need are criteria and procedures whereby we may match a medium to the requirements of a learner. To do this we must change the nature of our research on media-message design and develop adequate models of communication before we can hope to provide a scientific framework for the instructional designer. In the reviewer's opinion, what is needed is systematic research on the relative effectiveness of analogical and digital modes of representation as these relate to the content of the instructional message, to communicator and learner characteristics, and to the physical and psychological aspects of a particular medium or combination of media. It also is suggested that the

> cognitive approach (e.g., Neisser, 1967) to problems of design may offer a fruitful avenue to future research."[17]

Another quotation, which also highlights some of our difficulties in selecting learning opportunities, is that by R. Hutchins.

> "The crucial error is that of holding that nothing is any more important than anything else, that there can be no order of goods and no order in the intellectual realm. There is nothing central and nothing peripheral, nothing primary and nothing secondary, nothing basic and nothing superficial. A course of study goes to pieces because there is nothing to hold it together. Triviality, mediocrity and vocationalism take over, because we have no standard by which to join them."[18]

With such statements to haunt us, I would first like to present some criteria formulated by curriculum scholars and second to raise some questions about them.

Criteria for Selection of Learning Opportunities

There are many publications which deal with this topic. Some may be titled, Guidelines for Textbook Selection; Guidelines for an Adequate Investment in Instructional Materials; Principles for Selecting Learning Experiences, and the like. Frequently these documents concern themselves with who is to do the selecting and what process is to be used.

Criteria formulated by Tyler, Goodlad and Taba[32] are valuable, if certain assumptions are made about education. There are six criteria that might be useful for us to consider.

1. Learning opportunities must provide for using the behavior implied in the objectives. That is, if the student is to acquire skill in problem solving, he must have an opportunity to solve problems.

2. Learning opportunities must provide for using the content implied in the objectives. If the objective had to do with skills in solving problems of health, the student must solve health problems not economic problems.

3. Learning opportunities must be within the range of abilities and interests and styles of students involved.

This is so obvious that it hardly bears repeating, but students who have little reading skill can hardly profit from the reading of Romeo and Juliet.

4. Learning opportunities should be economical. If possible, learning opportunities should be selected that facilitate the student acquiring several important objectives. That is, while a student is solving economic problems, he may also be acquiring knowledge about economics as well as attitudes.

5. A valuable learning opportunity must include content which is significant and valid. By this is meant concepts or skills which are reflections of truth as currently held by experts. This is particularly true in areas of science and mathematics. For example, concepts of atomic structure.

6. A valuable learning opportunity must provide possibilities for movements in unanticipated directions -- or, that is to say, it is to be fruitful.

The evidence for these criteria is mainly logical or philosophic in nature. There is little empirical evidence of their validity. With the exception of the last one, they all seem to be held together in the light of a technology of instruction. That is, the first six involve an ends-means, readiness, practical viewpoint. The last criterion seems to be open-ended. If it is open-ended as I think it is, and by that I mean that the ends are not specified in advance, then the ends-means criteria are not always applicable in selecting learning opportunities.

Questions About Criteria

One question that can be raised then about these criteria, is whether the ends-means conception of curriculum is adequate for all curricular decisions.

Another important question (to which an answer is generally assumed) can be phrased as, who selects the learning opportunities? The answer usually is that the teacher is responsible for selecting the learning opportunities and of necessity, the teacher is considered the primary decision-maker of all curricular and instructional decisions.

A third, and possibly the most fundamental question pertaining to the selection of learning opportunities, has to do with what kind of conception of education is accepted. Is it a technological or a humanistic conception?

3. EVALUATION

There is a great deal of interest and controversy about evaluation at this time. This interest and controversy can be documented by the following events. The National Assessment Project under Ralph Tyler's direction in 1966. In 1967 appeared the first monograph in the AERA Monograph Series on Curriculum Evaluation. This was titled, Perspectives of Curriculum Evaluation. Also in 1967, the Association for Supervision and Curriculum Development published a yearbook titled, Evaluation as Feedback and Guide. The National Society for the Study of Education has a 1969 yearbook, titled, Educational Evaluation: New Roles, New Means. And meanwhile, the U. S. Office of Education funded an R. and D. Center in Evaluation at the University of California, Los Angeles, in 1967.

The work in evaluation is characterized by many different thrusts. Probably all should be encouraged because the ballpark has not been adequately conceptualized yet and even if it were, scholars usually wish to explore a topic in their own way. Some are working on models, some on criteria, some on theory.

One model which has been formulated is that by Robert Stake. Stake makes the point that the two basic acts of evaluation are description and judgment, both of which are essential if educational programs are to be understood. Stake's model may be understood to some extent by a few brief notions and a quotation, as well as a figure from his article, "The Countenance of Educational Evaluation."[19] According to Stake, in order to evaluate, certain data must be gathered. This data can be organized according to the format of the following figure.

Intents	Observations		Standards	Judgments
(1)	(4)	Antecedents	(7)	(10)
(2)	(5)	Transactions	(8)	(11)
(3)	(6)	Outcomes	(9)	(12)

An illustration of data which could be recorded in each of the 12 cells is the following:

> "Knowing that (1) Chapter XI has been assigned and that he intends (2) to lecture on the topic, Wednesday, a professor indicates (3) what the students should be able to do by Friday, partly by writing on a quiz on the topic. He observes that (4) some students were absent on Wednesday, that (5) he did not quite complete the lecture because of a lengthy discussion and that (6) on the quiz only about 2/3 of the class seemed to understand a certain major concept. In general, he expects (7) some absences but that the work will be made up by quiz-time; he expects (8) his lectures to be clear enough for perhaps 90 percent of a class to follow him without difficulty; and he knows that (9) his colleagues expect only about one student in ten to understand thoroughly each major concept in such lessons as these. By his own judgment (10) the reading assignment was not a sufficient background for his lecture; the students commented that (11) the lecture was provocative; and the graduate student who read the quiz papers said that (12) a discouragingly large number of students seemed to confuse one major concept for another."[20]

As is obvious, this is in some sense a very comprehensive model. Another model is the CIPP model developed by D. Stufflebeam.

For some workers in curriculum a concern has developed and some formulation of criteria for evaluating curriculum and instructional materials. At a 1968 symposium at A.E.R.A., a paper was presented by Louise Tyler which outlined recommendations for evaluating curriculum and instructional materials. According to Tyler and Klein,

> "It has always been necessary to evaluate curriculum and instructional materials systematically, but now it has become imperative because curriculum and instructional materials development has become centralized. Large resources (funds, personnel and students) have been made available for the development of curriculum and instructional materials. In addition, the curriculum products of such groups as the Physical Science Study Committee, the School Mathematics Study Group, the Biological Sciences Curriculum Study, and the Chemical Bond Approach are widely used. At one time curriculum and instructional materials were made locally or by various publishers, but were used in a limited manner. If the materials were inadequate, the harm was restricted. This is not so likely today, and with the merging of electronic organizations and

> publishers, it is a certainty that curriculum and instructional materials will be centrally made and widely used. The damage could be widespread."[21]

The recommendations formulated at that time were grouped in the following categories:

I. General

II. Specifications

III. Rationale

IV. Appropriateness

V. Effectiveness

VI. Conditions

VII. Practicality

In the General category are statements that are general in nature.

Under Specifications will be statements referring to outcomes. The category Specifications is necessary because a fundamental question which is raised in curriculum has to do with what are the objectives. Also, no definitive evaluation of curriculum can ever be accomplished unless there are objectives.

Rationale is an essential category because it covers statements which deal with a presentation of how decisions were reached about the choice of objectives, subject matter, etc. Only in knowing the process and the reasoning involved can the user evaluate the materials. Likewise, the producer should have engaged in this process.

Appropriateness includes statements having to do with the kind of learner for whom the material is developed. Evaluation of materials should be done in light of characteristics of the learner.

Effectiveness includes statements pertaining to characteristics for determining impact. The user needs to know how the curriculum was evaluated and the producer would likewise have been engaged in this process.

Conditions relates to statements having to do with essential givens if the materials or curriculum is to be utilized. Conditions must be known so that a user can determine whether his situation is similar to the setting described, and the producer also deals with this aspect.

And finally, Practicality has statements relating to factors basic to use in a particular setting, e.g., cost of materials, building facilities, etc.

A few examples of the specific criteria might be useful.

R1. The value of the objectives must be substantiated.

(Essential)

(Comment: The producer should present documentation about the value of the objectives formulated. For example, what is the basis for thinking that objectives having to do with understanding the structure of the disciplines are important? And while the producer may present documentation for the importance of the objectives, it does not necessarily follow that the consumer will arrive at the same judgment.)[22]

E1. Manuals should cite sources of available evidence to document any claims made about effectiveness and efficiency. These sources should include not only the projects' studies, but evidence from other carefully documented studies. Studies done to evaluate the program should be described in a straightforward manner.[23]

E4. Effectiveness of programs should be reported in terms of program objectives as well as unintended outcomes.

(Essential)

(Comment: Curriculum developers are expected to report studies which are directly related to stated program objectives. In addition, however, there are other important objectives possibly not stated about which the consumer would be interested in knowing. Information should be reported on such objectives. For example, projects may report on acquisition of knowledge and application of principles, but neglect data regarding interest in the area. Also, the kinds of attitudes which exist in students who decide to participate in particular curricular projects, e.g., P.S.S.C., may be significant. Or in some cases, projects are concerned about understanding the nature and structure of the discipline, but what about the acquisition of information? The kinds of evidence and how they were obtained should be reported.)[24]

The work on these recommendations is continuing and a monograph is being submitted to AERA for publication in the monograph series.

A third thrust is that of theory building. This is in the process of development at the R and D Center in Evaluation at UCLA. Various reports are emerging from this Center and hopefully also a theory. There is one document, Evaluation Perspectives: 1968 by C. Robert Pace which may be useful in the eventual formulation of theory. In this paper, Pace outlines some of the history of evaluation and suggests that:

> "An analysis of different evaluation models indicates that the standard experimental design model is usually applicable if the unit to be evaluated is small in size, limited in scope, and short in time. But when the unit to be evaluated is large, complex, and of long duration, a different model is necessary -- one that considers a broad range of social and educational consequences, is not limited to an appraisal of program objectives, considers a variety of contextual variables and requires complex multivariate methods of data analysis."[25]

To be more specific, what Pace is suggesting is that if a half-hour film, a programmed text is to be evaluated, then evaluation can be directly related to behavioral objectives, can be designed as a hypothesis testing experiment and largely limited to the intended effects of the program or treatment.

The R. and D. Center at UCLA had a seminar (Summer '67) with Benjamin Bloom designed to facilitate our staff in movement toward a *theory of evaluation*. This seminar dealt with suggesting propositions which could account for some of the phenomena of evaluation. This way of proceeding in the formulation of a theory is being utilized by students in evaluation at UCLA.

II

Curriculum Theory

This section of my paper on curriculum theory is going to be somewhat different than the section on curriculum development. It is going to be different because there are so many facets of the topic about which I am not able to clearly say, I know this or that. What I am going to do is present as well as I can where I am at this point in the matter of curriculum theory. This will make apparent all my inconsistencies, my ignorances -- but so be it.

I think I can honestly say, I think it is necessary that we build a theory of curriculum -- but after I've made that statement, which I presume comes as no surprise, I must admit I'm not sure as to what it means and where to go with it. My difficulty is that the word theory has many different definitions and I'm certain that, depending upon the definition you accept, you may go in different directions. For example, in the humanities, theory is used, "to refer to consistent and logical formulations about man's place in the world. Theory of this kind is composed of sets of assumptions or considered beliefs derived from a scholar's personal experience in the world and his contemplation of it in relation to the studied experience of others."[26] In contrast, these same authors state, "In its most frequently found form in the natural sciences, the term theory refers to a set of propositions inductively derived from emperical findings."[27]

Most workers in the field of curriculum are going in the direction of the second use of the word. There is only one book, as far as I know, on curriculum theory and that is the volume titled, Curriculum Theory by George Beauchamp. In this volume, Beauchamp makes clear that he is using the word in the natural science tradition. He states,

> "The central thesis of this chapter has been that description, explanation, and prediction are as applicable and necessary to curriculum theory as to any other field of endeavor. Most curriculum theorists will agree. They will also agree that the most basic theory-building activities are definition of technical terms, classification of knowledge, inference and prediction from research data, sub-theory building, and model making.[28]

The difficulty, however, about going in this direction has to do with my conception that education is an art based upon science, and is similar to medicine which is an art based upon science. As has been pointed out,

> "But the scientific knowledge does not by itself make a man a healer, a practitioner of medicine. The practice of medicine requires art in addition to science -- art based on science, but going beyond science in formulating general rules for the guidance of practice in particular cases."[29]

I think at this point I do not wish to settle for formulating curriculum "theory" in a "scientific tradition." Also, I do not know where "theory" fits into my notion of education as an art based upon science or whether "theory" can help to formulate general rules for guidance of particular cases. There may be some value in making the distinction between descriptive and prescriptive theories that M. Clements[30] outlines in "Theory and Education." In this article, Clements indicates that theory denotes a description of what is and at times denotes a prescription of what ought to be. Possibly, I am interested in prescriptive theories which are concerned about what ought to be and that I think both kinds of theory building should go on. And, that it is particularly important that prescriptive theory building go on.

One concern that I have about theory building is that I sometimes think it may be a withdrawal from life and can be consequently constricting for those who engage in it and possibly what is more harmful is that it can inhibit the creative and innovative practitioners in education. I will comment just briefly on this. Many of my comments draw upon J. Goodlad's presidential address, "Thought, Invention, and Research in the Advancement of Education," to the American Educational Research Association in 1968. In this address, Goodlad pointed out that educational practices provide both the problems for educational inquiry and the field for testing and verifying conclusions. As you know, possibly in a more vital way than I, the field of education needs innovative ideas so that education can face up to the challenges it faces. Goodlad states,

> "We are not likely to have invention in educational practice, however, let alone advances in educational science, if we demand research on the effects of an invention as a prerequisite to its creation. We are asking an ambiguous question, if not the wrong one. We are asking for information that cannot yet be given, or criteria that rest only in our own minds and which may be quite inappropriate. Perhaps worse, we invoke the sacred mysteries and prestige of 'research' equipping practitioners for whom the invention is intended (and probably threatening) with formidable defenses against changing anything, more formidable defenses than they would think of if left to their own devices."[31]

I guess my position, at this point, with regard to curriculum theory is that I wish to remain open about my conceptions of theory, of curriculum, of criteria so that innovation in education will be facilitated.

To summarize, I have attempted to outline some of the issues and trends in the development of curriculum and curriculum theory. Furthermore, I have implied and at times suggested the necessity of remaining open to various conceptions of education, curriculum theory and research.

Bibliography

[1] Howe II, Harold, *Picking Up the Options*, Department of Elementary School Principals, NEA, 1968, p. 2.

[2] Tyler, Ralph W, *Basic Principles of Curriculum and Instruction*, University of Chicago Press, 1950.

[3] Goodlad, J. and M. Richter, *The Development of a Conceptual System for Dealing with Problems of Curriculum and Instruction*, UCLA and I.D.E.A., 1966.

[4] Tyler, R. W., *op. cit.*, p. 10.

[5] Tyler, R. W., *Ibid*.

[6] Tyler, R. W., *op. cit.*, p. 83.

[7] A value is defined here as a belief that something is good or bad, desirable or undesirable.

[8] This may appear to be a process of derivation or logical deduction, however, Goodlad indicates that empirical--inductive inquiries are also required.

[9] Goodlad, J., *op. cit.*, p. 16.

[10] Goodlad, J., *op. cit.*, p. 28.

[11] Tyler, R. W., *op. cit.*, p. 30.

[12] Mager, R. F., *Preparing Instructional Objectives*, Fearon Publishers, Palo Alto, California, 1962.

[13] Mager, R. F., *op. cit.*, p. 12.

[14] Mager, R. F., *op. cit.*, p. 49.

[15] Eisner, E., Paper delivered at 1969 A.E.R.A. conference. To be published by Rand McNally in Curriculum Monograph.

[16] Eisner, E., *op. cit.*, p. 10.

[17] Saettler, Paul., "Design and Selection Factors," *Instructional Materials: Educational Media and Technology*. Review of Educational Research, April, 1968, A.E.R.A., pp. 124-125.

[18] Hutchins, R. M., *Education for Freedom*, Baton Rouge: Louisiana State University Press, 1943, p. 26.

[19] Stake, R., "The Countenance of Educational Evaluation," Teachers College Record, April 1967, Vol. 68 - No. 7.

[20] Stake, R., *Ibid*.

[21] Tyler, L., and F. Klein, Recommendations for Curriculum and Instructional Materials, A.E.R.A. Symposium, 1968, p. 1.

[22] Tyler, L. and F. Klein, *op. cit.*, p. 10.

[23] Tyler, L. and F. Klein, *op. cit.*, p. 12-13.

[24] Tyler, L. and F. Kelin, *op. cit.*, p. 13-14.

[25] Pace, C. R., Evaluation Perspectives, 1968, C.S.E. Report No. 8, UCLA, Los Angeles, California.

[26] Gordon, Ira J. (Editor), Theories of Instruction, A.S.C.D., N.E.A. 1201-16th St., N.W., Washington, D.C., p. 2.

[27] Gordon, Ira J., *op. cit.*, p. 3.

[28] Beauchamp, G., *Curriculum Theory*, The Kagg Press, 1968.

[29] Hutchins, R. M. (Editor), Great Books of the Western World, The Great Ideas - Vol. 1, p. 66.

[30] Clements, M., "Theory and Education," *Educational Theory*, Vol. 12, No. 2, April, 1962, pp. 124-128.

[31] Goodlad, J. I., "Thought, Invention and Research in the Advancement of Education," Educational Forum, Nov., 1968, Vol. 33, No. 1, pp. 11-12.

[32] Taba, Hilda, *Curriculum Development: Theory and Practice*, p. 267.

Baker Hotel
Dallas, Texas

National Conference
March 7, 1969

Training of Personnel in Curriculum Development

Alberta D. Hill
Professor, Home Economics Education
Iowa State University, Ames, Iowa

The directive given for developing this topic, "Training Personnel in Curriculum Development" was to provide information that suggests a framework needed in training personnel for the development of vocational education curriculum materials. An attempt has been made to suggest a framework, or several kinds of framework, for training curriculum personnel by:

1. Identifying basic assumptions underlying vocational technical curriculum and regarding curriculum leaders.

2. Reviewing the competencies needed by curriculum personnel.

3. Sifting from that which is known about learning a few principles which can be applied in training personnel.

"Curriculum" as used here is perceived as a rather general term; not as all inclusive as the 1930's idea of "everything that happens to the learner" nor as restricted as Gagne's (1967)"sequence of content units."

Assumptions Basic to Training Curriculum Personnel

The selection and statements of assumptions basic to developing a plan for training curriculum workers are a personal compilation. They are presented not as the assumption to be accepted but to suggest the areas in which assumptions need to be made. Each of these assumptions need to be challenged and subjected to continual study and debate.

The first assumption and one which provides the justification for this conference is:

1. ". . . curriculum development in vocational education is complicated by the diversity of occupational objectives; variations in geography; differences in educational levels and types of programs; and by a wide range of occupations. . . ."[1]

Two closely related assumptions are:

2. The charge given to vocational-technical education requires an extension corps of highly competent curriculum personnel to work continually for the improvement and adjustment curriculum and to build new instructional programs for new occupations.

---

[1] Public Law 90-576, Vocational Education Amendments of 1968, Part I, Sec. 191(a)

3. Social demands and legislative directives require a commitment of vocational personnel to planning programs for all kinds of people, in all kinds of communities and for all occupations.

The following additional assumptions are also basic to training curriculum personnel:

4. There must be a bit of the curriculum expert in every vocational educator. Every instructor and assistant instructor will make curricular decisions. However, those who make major curricular decision or assume leadership in development and evaluation of curriculums need additional and specialized preparation.

5. Curriculum development requires a complex of competencies, many of which may be achieved by one person, but it is often more efficient to use a team of experts - occupational analysts, teachers, scholars from supporting disciplines, administrators and researchers.

6. The movement of any curricular development from conception to adoption is a political process, a process which may be as important to the success of education as the intellectual conception of new ideas.

Competencies Needed by Curriculum Personnel

The six basic assumptions suggest competencies needed by vocational education curriculum personnel. Other competencies have been stated, or implied, by other speakers. This re-statement is made for review and, hopefully, as view from a different angle.

First, all curriculum personnel should have assimilated, or created, a well definied - though not rigid - theoretical framework for curriculum. The components of the framework may be conceived simply as Magers (1968) "Where Am I Going?" "How Shall I Get There?" and "How Will I Know I've Arrived?" or as a far more sophisticated construct. The kind of conceptual framework needed by an educator will depend on the kind of curriculum decisions he is required to make. Curriculum "specialists" need to be cognizant of the various theories, be able to compare and anallyze different theories and create adaptations for vocational education.

We have accepted the assumption that the curriculum building is complex and may require a team of curriculum workers. The following competencies are those needed among the team members but may mot be a highly developed competency of every curriculum worker.

First, there needs to be among the team the capability for diagnosing the present and projected needs of the learner. The diagnosis may take the form of a trade or occupational analysis; a complex extrapolation of economic trends; a survey of employment opportunities; or research designed to identify factors affecting the total development of the learner, including his ability to function effectively as a member of his home and community.

A second competency needed among the team is a thorough comprehension of the structure and theoretic bases of the discipline(s) used in preparing for an occupation. There must be someone on the team competent in making judgments as to the validity and importance of the subject matter content of the curriculum.

A third team competency needed is the understanding of psychological and sociological principles of learning.

The three competencies just listed are competencies needed among specialists who may or may not be fulltime vocational educators. Vocational educators need to be competent in securing the expertness of others and cannot delegate to others the responsibility for utilizing these capabilities to:

- Pinpoint the behavioral objectives to be achieved in a particular facet of vocational education and state the objectives in ways that communicate the intent of the program to all concerned - learners, teachers, counselors, spouses, parents, publishers, architects and employers.
- Plan a wide variety of activities that will help learners, learners with varying motivations and backgrounds, achieve the selected objectives.
- Organize content, objectives and learning processes into a sequence which facilitates learning.
- Develop ways to measure learner's progress toward objectives and provide feedback to learner.
- Translate objectives and plans for vocational education into plans for materials and facilities.

Among curriculum personnel there are needed two additional competencies: (1) ability to design and conduct research program to determine effectiveness of curriculum and test curriculum theories, and (2) skill in the use of the dynamics of social-political action to implement major curriculum change.

Learning Principles Applied to Training Curriculum Personnel

Two widely accepted ideas about learning seem to have particular value to planning for the training of curriculum personnel. The first might be stated: learning is facilitated when the learner perceives that which is to be learned as important and immediately useful. The second, based on a long time accumulation of research and experience is: learning, i.e., change of behavior, requires the active involvement of the learner. Woodruff (1967) suggests that a thorough learning process requires opportunities for the learner to have real perceptual sensory experiences; to recall related perceptions and compare and organize perceptions; to choose a line of action; and try out and evaluate decisions in real or simulated situations.

If these two general principles are accepted, then it can be said that training of curriculum personnel requires the creation of situations in which prospective curriculum leaders can become involved in curriculum activities which seem practical and important.

Exciting pilot programs are being conducted in the use of computers and various educational media for involving learners. Many such innovations are related to teaching elementary, secondary and vocational-technical students; less has been done in teaching teachers or curriculum planners. A small scattering of programmed instructional materials and self instructional packets have been developed. The potential of use of new media for providing involvement is too great to explore all possibilities here but it would be irresponsible to omit mentioning a few.

- Some competencies needed by curriculum personnel might be accomplished by use of videotape. Lessons captured on videotape could be analyzed to identify behavioral objectives, to classify objectives or to evaluate the appropriateness of the learning activities for accomplishing the objectives and for the particular learners.

- A series of 8 mm. film loops (often referred to as single concept films) would be an excellent tool for initial preparation in analyzing the tasks used in some occupations.

- One group at the Institute in Educational Media:Simulation held at Monmouth, Oregon last summer developed three games which involved the learner in acquiring knowledge of, comprehension and ability to apply the Bloom taxonomy of educational objectives.

- Variations of the in-basket, out-basket techniques used in business and school administration training could surely be adapted to developing behaviors needed by curriculum personnel charged with the responsibility of curriculum planning and change.

Many of the plans for involving the trainee do not, necessarily, insure application of the first learning principle suggested: learning is facilitated when the learner perceives that which is to be learned as important and immediately useful. Nothing replaces real curriculum work for real learning situations as a way to help the prospective curriculum planner perceive the usefulness of learning about curriculum development.

Teacher educators are well aware that prospective teachers may view as senseless busy work, the assignment of writing educational objectives as an exercise in methods course. "Living through" an experience in teaching is usually needed before one comprehends why a specific plan of "Where Am I Going?" is needed before beginning to teach. Early and continuous participation in real educational situations should be a must for all baccalaureate programs preparing vocational teachers for their various roles, including that of curriculum planning.

The need for highly trained curriculum personnel is so great emphasis needs to be given to preparing leaders from among educators who have potential but presently lack the background needed. The learning principles which have been identified give support to intern type programs in which the potential leader actually performs as a curriculum specialist, making decisions which can be evaluated with the help of a clinical adviser. Internships of several months or a year and patterned somewhat like the internships of the National Association of Secondary Principals would increase the output of present leaders as well as train the additional personnel needed. It is envisioned that interns might work under the direction of such persons as occupational supervisors in state departments of education, teacher educators in colleges and universities, or curriculum directors in vocational-technical schools. Interns might also serve as assistants to educational consultants or editors in publishing or educational media companies.

Short, in-service experiences can greatly extend the total curriculum capability among vocational educators. Teachers can be asked to teach other teachers; prospective leaders may be given opportunities to work a day, or week with a team studying occupational opportunities, evaluating curricular materials or planning new facilities. Experiences which help move people into curriculum leadership roles do not happen without administractive structures for identifying and encouraging potential leaders, for providing guidance and for financing costs involved. Even more important is imagination on the part of current leaders and faith in the potential of the novice.

It is not suggested that practical experience along is sufficient for training curriculum leaders. Practice needs to be coordinated with guidance and additional study. The internships are most meaningful when planned as an integral part of advanced study. The levels of curriculum competency needed by thore making major decisions in vocational education will be best achieved in graduate programs involving intensive study of psychological and philosophical bases of curriculum theories and rigorous preparation for curriculum research.

Information - and opinions - concerning (1) basic assumptions about vocational curriculums, (2) the competencies needed by curriculum personnel, and (3) principles of learning have been given to suggest a possible framework for training personnel. A framework is only suggested by these comments and no attempt has been made to describe precisely a conceptual framework or to diagram the interrelations of the parts.

Bibliography

Gagné, Robert M. Curriculum Research and the Promotion of Learning. In AERA Monograph Series, Perspective of Curriculum Evaluation. Chicago: Rand McNally & Company, 1967

Mager, Robert F. Developing Attitude Toward Learning. Palo Alto, California: Fearon Publishers, 1968

Woodruff, A. D. First steps in building a new school program. Copyrighted mimeographed working paper for use with school personnel. 1967.

Baker Hotel
Dallas, Texas

National Conference
March 6, 1969

The Development of Standards for Curriculum Materials

Byrl R. Shoemaker

Director of Vocational Education
Division of Vocational Education
State Department of Education
Columbus, Ohio

Vocational education cannot be classed as a unique discipline within the educational system of our country. Rather, it can be identified as a program in which we combine the skills and technical content of various disciplines with the practical requirements of the world of work in order to prepare a young person to succeed technically and socially in that world of work. Vocational education, while not unique as a discipline, is unique as a program and this uniqueness is reflected in facilities needed for the instructional program, equipment, instructor qualifications, student goals, and the curriculum provided for the instructional program. Within this listing of unique factors for vocational education, the student goals become paramount and serve as the basis for the development of the curriculum, facilities, and equipment. Also, instructor qualifications grow out of the curriculum plan.

This presentation will focus on the area of curriculum and curriculum materials. It would be possible to discuss these two items in great detail based on the mechanical process of curriculum organization for the various areas of vocational education since each would have a uniqueness in content which would make some differences in the pattern of organizing and reporting the curriculum process. While I propose to discuss some principles dealing with curriculum and curriculum materials in this paper, I believe it is extremely important to discuss some concepts and theories which serve as a basis for decisions about curriculum.

Many of our arguments over curriculum organization, curriculum material development and the amount of emphasis to be placed upon vocational education curriculums within the public education process grow out of differences in understanding or lack of understanding of principles in the learning theory or the educational process. Disagreements over curriculum often start in differences in opinion over:

1. Purpose of Education
2. Learning Theory and Principles of Learning

3. Attitude Towards Present Collegiate Preparatory Curriculum
4. Principles of Curriculum Organization
5. Scope of Curriculum

I would suggest that a person will make a shallow approach to curriculum development unless a study is made of these factors and some principles of education developed. A paper of this type cannot adequately condense the many volumes that have been written on each of these topics but I would propose to make a brief summary of the importance of each of these factors.

Purpose of Education

The overall purpose of education in any society might be stated: "To prepare people to adjust to and improve the society in which it exists." The educational process, therefore, is constantly affected by the society in which it exists and by the social and economic factors prevailing in that society. Early efforts in education, therefore, emphasized the importance of literacy and citizenship training, since a democratic society depends upon a literate, informed and concerned citizenry. As our society grew more affluent, more complex, free public education was extended upwards into the high school years. At the time the early high schools were organized, the large majority of the youth attending the high school did so as a preparation for attending college. Job skills other than the professions were learned through a pass-on procedure of father to son, through a process of apprenticeship indenture or through the pickup process, since much of the work involved unskilled process involving only strong backs.

Since the major goal of the early high schools tended to be that of preparation for college, it was natural that the curriculum in our high schools was organized around the subject-centered basis that one would find in the normal college or university. The high schools gradually established a Carnegie unit of organization which would allow the colleges and universities to identify those students who had completed the course of studies each college assumed was the best one to prepare for further education at the collegiate level.

While every set of objectives including the "seven cardinal principles of education," "the ten imperative needs of youth" or the "developmental needs of youth" as identified by Havighurst all established the importance of preparing youth for employment who are not going on to college. The high school curriculum of yesterday and today, however, has essentially remained a subject-centered college preparatory curriculum. Our present high school curriculum is oriented to the college preparatory purposes with a smattering of liberal arts, co-curricular activities and cultural subjects serving as the basis for calling a school "a comprehensive high school."

The obscurity of the organization of the present curriculum and the fact that the most intelligent students have tended to do well in the college preparatory curriculum has grossly misled our people into assuming:

1. That the subject-centered curriculum was the best way to prepare for college.
2. That this curriculum was the best way to prepare for life.

The present subject-centered college curriculum assumes:

1. The preparation for work cannot prepare for living and citizenship as well as for earning a living.
2. That liberal arts which tend to contribute to enjoyment of living takes precedence over preparation for employment.
3. That most of the youth participating in our public education system, including the large number that drop out from the system, can continue to get training for work through the pickup method based on the technological nature of our society, the economic organization of that society and the social changes taking place.

It is my thesis that:

1. The price of our technological age is pre-employment training for the majority of youth who wish to enter employment in business and industry.
2. Curriculums planned for pre-employment training can also make a major contribution to the development of good work habits and attitudes and the education of youth as a participating citizen in our form of government.
3. Curriculum planned at the high school level cannot assume the role of education for a lifetime.
4. While both cultural subjects and occupational training are worthy services of educational programs, our economic society and the opportunity to participate in the cultural values offered are dependent upon employment in that society.

The heavy unemployment among unskilled youth in the ages of 16 to 24 particularly in the ghetto areas of our major cities and the growth of numbers on our welfare roles even in this period of high employment would suggest that unemployment creates poverty and that people in poverty do not participate economically or culturally in our society. In a recent article in The Wall Street Journal, Harley L. Lutz, Professor Emeritus of public finance at Princeton

University said:

"Poverty is essentially a problem of distribution of wealth. It has three significant aspects, and for each there is a specific remedy.

"The three aspects are: An excessive number of people need employment; the skills needed for remunerative employment are lacking, and capital to provide the needed jobs is insufficient. The obvious corresponding remedies are population control, better training facilities and more capital investment. . . .

"Better training for the new skills. New materials, processes, and machines have been developed at an amazing rate, but educators have not revised and adjusted the educational process to conform with these changes. In consequence, too many people have been unable to acquire the skills called for by the new industrial age.

"The failure of educators to keep pace with the changing economic and social environment may be laid, in large part, to fundamental differences of theory regarding the purposes of education. These purposes are training in some sort of craft, occupation or profession in which the individual can earn an income sufficient to provide a comfortable living for himself and his family, and orientation in the culture of his society that will give his life greater fullness and meaning. Both are important and neither can be adequately achieved by the time the individual arrives at maturity. However, whatever is to be done by schooling with respect to the first objective, so far as a large proportion of each new generation is concerned, must occur within the first 20 years or so of the life span. To this extent it should have priority. The individual's cultural development is not limited in time or extent to the knowledge and understanding acquired in college, although many assume that the bachelor's degree is a certificate of a complete education.

"The traditional emphasis in intermediate and higher education has been on the second of the above objectives. High school and "prep" school instruction has been geared to the college entrance examinations, and the typical liberal arts college curriculum has been heavily loaded with cultural rather than vocational courses. There is, of course, a place for the liberal arts college and for its educational program. But the solution to the problem before us is not to build enough colleges and spend enough money to put every young person through the typical liberal

> arts college program. For some this would be compatible with their chosen life work, but for many it would not be. The latter group needs, and very likely its members would be better satisfied with a type of education that would provide the foundation for some kind of skill directly related to earning capacity.
>
> "The facilities for this purpose--plant, staff and administrators--will cost a lot of money. To some extent existing school and college equipment could be used and the many community colleges could adapt programs to the new requirements.
>
> "Whatever additional facilities may be needed must be provided by private and public funds. An important aspect of this shift in educational emphasis should be job counseling, since many young persons do not know enough about employment opportunities and their requirements to make intelligent decisions. After all, it is a choice between spending for relief or for advancement. The net cost difference may not be great but the net advantage is beyond calculation."

I would suggest, therefore, that vocational education is a very worthy purpose in the educational program today and that it should become a primary purpose of education at the secondary level in order to enable young people to enter, to adjust to and to improve a technological society.

Learning Theory and Principles of Learning

Early practitioners and theoreticians in the area of education such as Pestalozzi, Rousseau and Froebel had no need to concern themselves with preparation of youth for employment since the youth were prepared for employment in a father-son relationship. They found, however, that education separated from the life experience of the youth was not effective. Without understanding the psychological principles behind learning, they found that they had to relate the teaching in school to the work life of youth. So we find that early in the history of formal education, proposals of the educational process should involve a half-day in school and a half-day at work with relationships to be drawn between the two experiences.

Psychological studies confirmed the experiences and observations of the early theoreticians in education. Through the psychological studies, principles of learning were developed which could serve as guides for instructional methods and curriculum organization. Gerald Leighbody in his book "Teaching Industrial Subjects" summarized the principles of learning as follows:

1. We learn best when we are ready to learn. When we have a strong purpose, a well fixed reason for

learning something, it is easier to receive the instruction and to make progress in learning.

2. The more often we use what we have learned the better we can perform or understand it.

3. If the things we have learned are useful and beneficial to us, so that we are satisfied with what we have accomplished, the better we retain what we have learned.

4. Learning something new is made easier if the learning can be built upon something we already know. It is best to start with simple steps which are related to things we can now do or which we already understand, and proceed to new and more difficult tasks or ideas.

5. Learning takes place by doing. Before the learning can become complete, we must put into practice what we are attempting to learn.

These psychological principles of learning were not developed for vocational education or by vocational education, but even a cursory review of these principles will show the massive possibilities present in vocational education programs to utilize these principles in both curriculum organization and teaching methods. John Dewey, a modern theoretician in education, put together the experiences of the early theoreticians, and the principles of learning developed by the psychology studies and made popular the phrase "Learning by doing."

Prosser's sixteen theorems for vocational education, so well known to the people within our field and so applicable today as they were at the time they were written, put into language for vocational educators the proven principles of learning and the educational theories so well expressed for the total educational program by John Dewey.

All experience in education, all the results of scientific studies have indicated that to be effective education must be experienced centered. A sound curriculum, therefore, must have experience as its center if it is to be effective in the education of youth and adults. Vocational education requires an experience-centered curriculum.

College Preparatory Curriculum

James A. Rhodes, Governor of the State of Ohio, has indicated clearly to the members of the State Legislature of Ohio and to the State as a whole that his legislative program for this session of the Legislature will strongly support expansions and improvements in the area of vocational and technical education. After the Governor's message to the Legislature outlining his plans for vocational and technical education, a reporter talked to some of the representatives in the Legislature who had a labor background. While the representatives for labor were not opposed to the expansion of vocational education, they indicated a fear that broad development of vocational education might have an adverse effect on the college preparatory program and expressed the opinion that they wanted their children to be sure to complete the college preparatory program.

Our news media have given much space to concepts expounded after "Sputnik" by the "Rickovers and Bestors" which would tend to lead to an educational theory of educate the best and forget the rest. As indicated in earlier sections of this report, our high school curriculum has been based upon the fact that all youth completing high school should be prepared to go to college. The great American dream has been that every boy can be President and, therefore, we must offer all of them the same type of classical education because some of them might want to go to college

Discussions with most high school principals will indicate that they believe that most of their graduates go on to college. In the State of Ohio, however, the facts show that for every one hundred students starting the first grade, seventy-six will graduate from high school, thirty-two will start to college and fourteen will finish college.

Our curriculum in our public schools, therefore, tends to point itself towards the needs of the fourteen who will complete college and ignores the needs of the majority of the students. If research showed that it was necessary for a young person to make a choice between a college preparatory program which prepared him for success in college and a vocational program which prevented him from attending college, perhaps most educators would take the view that we must make sure that all young people have the opportunity to prepare for college. Fortunately, however, research has indicated that it isn't necessary to make this kind of a choice even when the student invests himself in a depth program of vocational education involving three-fourths of his day during the last two years in high school.

In Ohio, all graduates of vocational education programs are eligible to attend state universities. If universities would believe thirty years of research, those who can think, write and read better than the average student--all could be entered into universities of their choice. The Carnegie unit approach to curriculum organization imposed upon the public schools by our universities has absolutely no basis in research. Thirty years of research dealing with success in college has proven that success in college correlates more clearly, more directly, with how well a student did in whatever he took in high school than it did with any certain set of subjects.

To report just the findings of two such studies, David Cook in his study on "Predicting Success in College" summarized his findings in these words:

> "It did not make a great deal of difference whether a student took a college preparatory course (with more mathematics, language and science) or a non-college preparatory course so far as grades earned in college were concerned. . . .
>
> "Advanced study of languages in high school had no relationship to grades earned in foreign language in college."

Paul B. Diederich in his article "The Abolition of Subject Requirements for Admission to College" made this statement:

> The only requirement for entrance to the University of Chicago is "that students be able to read, write and think a good deal better than most students are now able to do."
>
> "Simple tests of these three abilities have a higher correlation with marks in all courses than any other major has ever devised.
>
> "Our system of public secondary schools, therefore, is in the grip of a standard curriculum which is based on the fundamental premise that the pursuit of certain prescribed studies is essential to success in college. It has been proved as completely as anything in life is ever proved that this premise is false."

I would submit to you that our present high school curriculum is bankrupt. It is subject centered in opposition to all that we know about the learning process. It worships at the altar of math and science as Gods rather than as tool subjects. It assumes that the Carnegie unit requirements for entrance into college has a basis in fact for success in college and this assumption has been thoroughly disproven. It accepts an 1850 concept of a curriculum organization pointed towards preparation for the professions as the basic curriculum for all youth. The curriculum in the majority of our high schools is not relevant to either the needs of youth or the needs of our modern society and must face a massive change.

Curriculum organization for vocational education must avoid the same practices and problems which have made the present high school curriculum bankrupt and must not allow itself to be restricted because it might interfere with the real high school educational program "the college preparatory curriculum."

Principles of Curriculum Organization

Studies in curriculum organization have pointed the way to improve practices in education. While all of us have had to study curriculum organization, public education has tended to ignore improved curriculum organization because the teachers coming from the colleges are prepared to enter into only one type of curriculum pattern.

At the time that our high schools were organized, the discipline-centered pattern of higher education, in which the disciplines were divided into subjects, was passed on down to the new high school organization. This organizational pattern was established on the basis that if students were to succeed at the college level, studying subjects as they would in college was the way to prepare for success. It is sad but true that the junior high school also tends to follow the same subject-centered curriculum as established for the high school.

Curriculum theory as studied in your collegiate classes would point out that one way to encourage interest and learning on the part of the students is to correlate instruction within two or more subjects in such a manner that a point of interest is used as the approach. Under this approach the student can see the relationships between the subject areas. Experiences reported indicate that such a procedure for correlating subjects does serve as an interest stimulator for students. It is obvious, however, that the instructional program is still centered around the subjects and an observation of the educational programs in our public schools indicates that very seldom does a correlated subject-centered program continue such correlation for very long.

Another curriculum organization pattern encouraged in curriculum theory is that of integration of subject areas into one block of time such as combining English and social studies. The concept here, however, is that you still have a block of subject matter to be imparted to students but that you would use the subject matter of one to teach the subject, content and theory of the other. Such integrated programs have been from time to time successful but since they still are centered in terms of teaching subjects, there has been no broad acceptance of this pattern of teaching within our public schools. While this integrated subject approach provides a better method of curriculum organization, it is still subject-centered rather than student-centered.

The eight-year study growing out of the Commission on the Relation of School and College established by the Progressive Education Association in 1930 focused attention on a new process of curriculum organization called "the core curriculum." Dr. Harold Alberty, then Professor of Education at Ohio State University, was one of the foremost proponents of the core approach to curriculum organization. While in some sense the integrated or correlated subjects' approach might be identified as a core curriculum approach, Dr. Alberty's concept started with the problem of the student as the center of the core with subject matter, skills, technical knowledge interjected into the program on an experienced-centered base. While much of the core curriculum work in the eight-year study was built around social problems or around adolescent needs, Dr. Alberty in his development of the theory of the core program identified a pegged core concept in which the occupational goal of the student could become the center of the core and the experiences and knowledge necessary to prepare for this goal could become the basis for the curriculum organization.

The Smith-Hughes Act of 1918 and the sixteen theorems of Prosser envisioned vocational education as a core program in which the student's occupational choice became the center. The core curriculum concept was proven sound in the eight-year study. This curriculum approach, however, is the most difficult approach in curriculum organization since it does not provide for neat little blocks of subject-centered learning which can be organized and taught easily by the instructor and measured easily by appropriate tests.

Essentially, people in vocational education have been operating under the core curriculum concept. The new "Educational System of the 70's" program sponsored by the research unit in the U. S. Office of Education is essentially a return to this concept. The approach suggests that to be effective, any study of mathematics, science or other technical areas must be related as an integral part of the experience-centered efforts in the shop, laboratory or on the job.

Scope of Curriculum

In the early 1940's, the term "life adjustment education" became a popular term in education, but then fell into disrepute as a progressive education movement became mistakenly aligned in the minds of people with the few in the movement who thought progressive education was related to the question of, "What do you want to do today, kids?" The life adjustment education concept, however, envisioned a concern for the whole student and not only a responsibility for teaching him subject matter and skills. A concern for the whole student would indicate a concern not only for his exhibited educational progress in the classroom or laboratory but also for the social, economic, physical and mental health conditions that had a bearing on his participation in the educational program.

While educators for years have given lip service to this concept of concern for the whole student, education has not had either the understanding, the financing, or the staffing to do more than give lip service to this concept. I am suggesting that the educational curriculum cannot be separated from the supportive services involving enrichment or remedial education, social services, economic support, and physical and mental health services. Our experiences in the job corps centers and in the programs operated within the states under Manpower Development and Training would suggest that schools that ignore the importance of these supportive services are encouraging high dropout rates of youth, particularly those from the low socioeconomic families. Experiences today would also suggest that the cost of welfare is such that it would pay society to make sure that an investment is made in every young person to enable them to enter and participate in our society as tax producers rather than tax consumers.

Investment in education and supportive services are perhaps the only solutions to our social and economic problems of our day. Funds invested in these are truly an investment, not a cost. If this concept were to be accepted with the schools, it would affect all facets of the educational program including facilities, equipment, staffing, student participation and curriculum organization. Most approaches to curriculum organization have not given attention or consideration to the integration of support services as a part of the curriculum.

On the basis of the information suggested in the sub-heads above in this paper, I would submit, therefore, that curriculum for vocational education must be organized on the basis that:

1. Preparation for initial job entry is a basic responsibility of the public education program.

2. The curriculum must be goal centered at age 16 years and above and for most youth, this goal can be most meaningful when related to preparation for employment.

3. Curriculum changes are demanded in order to make the curriculum more relevant to the social and economic conditions of our day and the maturity of our youth.

4. A core curriculum concept based upon the occupational goal of a student can provide both a meaningful preparation for employment and a means of education of youth to participate effectively in our technological society.

5. A curriculum must concern itself not only with the need for the knowledge of skills but with a total educational, economic, social and physical needs of each student.

Curriculum Organization Procedures for Vocational Education

Your attitudes or decisions concerning the concepts and recommendations listed above provide the basis for curriculum organization for vocational education. Sound curriculum organization involves hard work, understanding of learning theory, understanding of educational processes and procedures often beyond the ability or time available to the individual teacher. While it is true that all teachers must participate in curriculum organization, it does not follow that all teachers can successfully organize a sound curriculum. Too many of our efforts in vocational education have been pointed at experiences in starting and understanding curriculum organization rather than with the complete development of effective curricula for the programs. It is interesting to me that some of the early curriculum organizational procedures for vocational education grew out of experiences of some of the early leaders in organizing vocational curriculums for industry around the period of World War 1. Charles R. Allen developed many of his concepts of curriculum organization from experiences in the shipyard. It is equally interesting that some of our newest concepts for curriculum organization today are growing out of experiences for the organization of curriculum for the training of people within our modern industrial units.

An understanding of the process of curriculum organization is easy, but the job is tedious. The first step in the process seems rather obvious. If you want to prepare a young person to successfully enter an occupation, you must know what the occupation requires of the successful worker. We've identified the first step in the process of curriculum development as occupational analysis--what the successful worker must be able to do on the job. There are many formal patterns for occupational analysis and most are based on analysis of "Do" and "Know." Some of the less technical oriented areas or occupations could possibly be developed under these two simple headings, but such an approach often will ignore some of the important elements within a job. A broader pattern for analyzing a job would include a review of the job under the following major units:

1. Work Units, Jobs or Operations
2. Skills and Work Practices
3. Safe Practices and Work Precautions
4. Equipment, Tools and Materials
5. Mathematic Applications
6. Science Applications and Occupational Information
7. Specification Interpretations
8. Occupational Terminology
9. Work Habits and Attitudes
10. Personal Relationships
11. Physical Capabilities Required

The first eight items identified above are recommended by Elroy Bollenger and Gilbert Weaver in their book on trade analysis. This approach is not new with Bollenger and Weaver and is found in similar format in most of the literature suggesting processes of occupational analysis. None of the literature, however, has concerned itself with the last three items. Perhaps these last three items have gained added significance as we are committed to the concept that we must prepare all youth to enter effectively into our business and industrial society.

It should be observed that not all occupations have mathematic applications or science applications and in some cases other tool subject areas can be added to this list of topics. The underlying principle is to make an analysis of what it takes to be successful on the job.

A second step in the process of curriculum development would be to develop a course outline. A course outline is usually prepared from the occupational analysis and traditionally includes:

1. A Title
2. Objectives of the Course
3. A Listing of the Skills and Technical Knowledge Topics to be Covered in the Course

Such a listing should be in a logical teaching order. The course outline also will normally list prerequisites for the course and the length of the instructional program.

The third step in the process of curriculum development is a development of a course of study. Giachiro and Gallington in their book on course construction say that a really comprehensive course of study should include:

1. A general introductory statement specifying the main concepts of the course.
2. The grade level for which the course is intended.
3. The main divisions of the course with a time limit for each.
4. Specific practices that are being followed in teaching.
5. Philosophy and objectives pertaining to the specific area of instruction as well as the course aims.
6. An orderly arrangement of the manipulative operations to be learned.
7. An outline of the essential related technical information.
8. The media to be used in learning the established skills and knowledge (projects, jobs, problems, et cetera).
9. The activities which are designed especially to foster the development of desirable attitudes and good work habits.

10. The nature of instructional aids that will be used to simplify learning.

Many other authors provide a similar outline for a course of study. The uniqueness of the proposals by Giachiro and Gallington is the inclusion of activities designed to foster the development of desirable attitudes and good work habits.

It is my experience that to be effective in a developing of work habits and attitudes, there must be specific plans included in the course of study and instructional practices established to achieve such goals.

The next step in curriculum organization is normally assumed to be the development of the instructor's lesson plans. My experiences in the Navy have indicated to me that it is not essential that each instructor develop his own lesson plans but it is essential that each instructor adapt any lesson plans provided him to his own personality and instructional situation. Many examples of lesson plans can be found but most are based on the four-step method of instruction which includes:

1. Preparing the Learner
2. Presenting Instructional Topic
3. Providing Applications of the Knowledge Learned
4. Testing Student Understanding and Ability to Achieve

Curriculum Materials for Vocational Education

A selection and development of instructional materials is an integral part of both the organization of the course of study and a development of lesson plans. Such instructional materials may include:

1. Teacher and Student Materials
2. Materials for Group Instruction
3. Materials for Individual Instruction

Education as a whole, and vocational education in particular, have always placed great emphasis upon the importance of instructional materials. Significantly, most of the materials have been based upon the group instructional process rather than the individual instructional process and even when materials have been developed for use by the individual student, they are seldom used effectively by the instructor for that purpose. If individualized instruction has been basic to vocational education in dealing with the teaching of manipulative skills, the same emphasis upon individualized instruction has not been placed on the teaching of technical knowledge and understandings and on the needs for remedial education on the part of youth participating in the program.

Vocational education can serve as a motivation to a total learning process and the modern technology of today makes possible the adaption of instruction to the varied ability and educational levels of the students involved in the educational program. A series of guidelines for the development of sound curricula materials might be listed as follows:

1. Reasonable Basis in Authority
2. Accurate Technically
3. Adequate in Scope to Cover the Learning Unit
4. Written at Educational Level of Students
5. Divided into Simple Learning Units
6. Organized for Individual Use
7. Provide for Individual Student Response and Learning Evaluation
8. Easy Procedure for Teacher Checking of Student Achievement
9. Attractive in Appearance

On the Saturday before preparing this paper, a man highly skilled in the area of computer operations met with me to raise questions as to why education was not moving more quickly into the use of television-instruction, computer-based instruction, audio visuals of the tape loop type. He pointed out that in one of the new schools built recently in his area, each classroom had two walls covered by blackboards. He raised the question as to why blackboards were needed, except in a few isolated instances, when overhead units would be so much more effective. It is sad but true that most of our educational efforts in vocational education as in all education, except for manipulative instruction, tends to be group centered and we have neither the hardware, instructional materials or teaching skills necessary to make effective use of the broad media available to us today.

In Ohio we are in the process of building massive numbers of new facilities for vocational education. Curricular decisions must be made in order that these decisions can be implemented in the physical facilities and equipment planned for the building. Modern curriculum procedures would suggest the importance of a heavy investment in facilities and equipment for individualized study. Our observations are, however, that even when facilities and equipment are provided, the materials to implement an individualized study program are slow in coming and teachers are even slower in adapting their instructional methods to new concepts of education.

Vocational education offers the greatest opportunity to establishing broad blocks of time for the use of the new instructional methods and materials. Experimentation in the training of the unemployed for employment shows that the use of modern hardware, materials, and methods provide remarkable success in teaching the less able and the illiterate. Such advantages would undoubtedly give the gifted students a massive boost in their achievement. In Quincy, Massachusetts, a claim is made that through the application of the most modern teaching techniques known and instructional materials available, they can develop an unskilled person into an auto mechanic within sixteen weeks.

The answer to this problem, therefore, is twofold. It calls for the expenditure of funds--either new monies or redirection of monies--for the necessary hardware and materials to individualized instruction, and for the improvement of teacher attitudes and skills in the use of individualized instructional approaches.

We know that industry has been willing to invest in the individualized instruction approach because they can measure the results of their efforts in terms of increased profits resulting from increased productivity. The public, however, unaware of the possible increased learning (product of public education) on the part of the students, is not as ready to invest tax dollars in such a program.

The answer to the change in teacher attitude is a function of in-service training and administrative leadership on the part of supervisors, principals, and superintendents. There cannot, however, be effective teacher acceptance of some of the individualized instruction processes until we provide the teacher with the type of supportive personnel which will enable him to function as a professional and to give leadership to the instructional process without having to do all the menial time-consuming functions that could be served by aides or technicians.

Summary

I would suggest the following guidelines for the evaluation of the vocational education curriculum. A curriculum should:

1. Be organized around the student's goal.
2. Be psychologically sound.
3. Be experienced centered.
4. Cover skills, technical knowledge, work habits and attitudes, supportive educational services and evaluative

techniques to analyze student achievement.

5. Provide for individualized instruction.
6. Be allocated a major section of the student's day.

Vocational education should not be viewed only as a means of getting a job. It should be viewed as a method of education and the curriculum should reflect this concept. Curriculum development starts with a job and ends with a student on the job technically competent and able to succeed. Work itself means more to the individual than the paycheck they received. Without work, there can be no leisure. The future of our nation rests on the productivity and work attitudes of the people. Jobs--not welfare--are the answer to the social and economic problems of our nation, and the unique function of vocational education is the preparation of youth and adults for employment.

Bibliography

Bollinger, E. W. and Weaver, G. G., *Trade Analysis and Course Construction for Shop Teachers*. New York: Pitman Publishing Company, 1955.

Cook, D. R., "Predicting Success in College," *The School Counselor*, VIII, March, 1961.

Diederich, P. B., "The Abolition of Subject Requirements for Admission to College," *School Review*, September, 1949.

Fryklund, V. C., *Analysis Techniques for Instructors*. Milwaukee: Bruce Publishing Company, 1956.

Giachiro, J. W. and Gallington, R. O., *Course Construction in Industrial Arts and Vocational Education*. Chicago, Illinois: American Technical Society, 1957.

Giles, H. H., McCutchen, S. P. and Zechiel, A. N., *Exploring the Curriculum*. New York: Harper and Brothers, 1942.

Leighbody, G. B., *Methods of Teaching Industrial Subjects*. Albany, New York: Delmar Publications, Inc., 1948.

Strong, M. E., *An Investigation of Trade and Industrial Education Curriculum Materials Development and Curriculum Laboratories in the United States*. Doctoral Dissertation, The Ohio State University, 1958.

Diversified Cooperative Training Material. Columbus, Ohio: Trade and Industrial Education, Instructional Materials Laboratory, The Ohio State University, 1967.

2/26/69

VOCATIONAL EDUCATION - ONE OF THE HUMANITIES!

Byrl R. Shoemaker, Director
Division of Vocational Education

THE FOCUS OF HUMANISTIC EDUCATION IS ON THE HUMAN RACE - WHAT WE HAVE - WHERE WE ARE - OUR HUMAN HERITAGE.

ON THIS BASIS, INSTRUCTION IN THE HUMANITIES DOES NOT DEAL WITH A PARTICULAR SET OF SUBJECTS, BUT WITH THE PROCEDURE AND EMPHASIS GIVEN IN ANY PROGRAM AREA, INCLUDING VOCATIONAL EDUCATION. TO MAKE VOCATIONAL EDUCATION ONE OF THE HUMANISTIC INFLUENCES ON THE STUDENT, THE TEACHER MUST ASK THE QUESTION "WHAT IS THE HUMAN BEHIND THE VOCATION?"

STARTING WITH THIS QUESTION, THE TEACHER CAN HUMANIZE ANY INSTRUCTIONAL AREA BY RELATING IT TO THE CULTURAL BACKGROUND OF THE OCCUPATION AND THE PEOPLE WHO HAVE WORKED AT THE OCCUPATION, AND BY PROJECTING ITS CONTRIBUTION TO SOCIETY.

GUIDELINES FOR THE HUMANISTIC APPROACH IN TEACHING;

1. PROVIDE FOR AN ENLARGEMENT OF SELF AND FOR PERSONAL INTEGRITY.
2. EXAMINE HUMAN POSSIBILITIES.
3. DEAL WITH ESTHETIC PROPERTIES.
4. PUT THE SPECIFIC INSTRUCTIONAL PROGRAM IN A BROAD HUMAN CONTEXT.
5. QUESTION ANY OBJECT OR PROCESS IN TERMS OF "HOW CAN IT BE?" "WHAT IS IT LIKE TO BE LIKE THAT?"

INDIVIDUALIZED INSTRUCTION AS A TOTAL PROCEDURE IS UNNECESSARY. SUCH A CURRICULUM WOULD BE TOO EXPENSIVE AND BORING.

2/26/69

INSTRUCTION CAN BE INDIVIDUALIZED BY:

- PROGRAM ORGANIZATION
- INSTRUCTIONAL TECHNIQUES

INDIVIDUALIZATION OF INSTRUCTION IS ESSENTIAL TO AND INHERENT IN EVERY VOCATIONAL PROGRAM. STUDENTS MUST LEARN TO BE ECLECTIC.

WE MUST SHOW EACH INDIVIDUAL THE RELATIONSHIP BETWEEN THE TASK AND PERFORMANCE OF THE TASK IN LIFE.

HUMANISM IN EDUCATION WOULD LEAD PEOPLE TO UNDERSTAND THAT EACH ONE IS NOT AN ATOM UNTO HIMSELF. PEOPLE ARE SOCIAL ANIMALS. AWARENESS AND ACCEPTANCE OF OBLIGATIONS MUST BE TAUGHT AND DEVELOPED.

PERFORMANCE AS A RESPONSIBLE HUMAN BEING IN THE ECONOMIC AND SOCIAL LIFE OF CIVILIZATION IS THE GOAL.

WE MUST COMBAT THE "DRUG" APPROACH TO A CONCEPT OF CIVILIZATION

AS IDENTIFIED WITH THE GROWTH OF INTROVERSION AND RATIONALIZATION.

THERE IS A RESPONSIBILITY FO SELF, BUT THERE IS A GREATER RESPONSIBILITY TO SOCIETY.

HOW? START WITH THE TEACHER.

[redacted]

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult and Vocational Education
Division of Vocational and Technical Education
Washington, D.C. 20202

DEFINITIONS OF TERMS USED IN VOCATIONAL AND TECHNICAL EDUCATION

1. Assignment Sheet - Directs the study to be done or assignment to be carried out by the student on the lesson topic, and may include questions to determine how well the lesson has been learned.

2. Consultant - A recognized expert (not vested with administrative authority) in a specialized field whose advice is sought in the improvement of a program of education and/or its facilities.

3. Coordinating Teacher (Teacher-Coordinator) - A member of the school staff who teaches the related and technical subject matter involved in work experience programs and coordinates classroom instruction with on-the-job training.

4. Coordinator (Cooperative Education) - A member of the school staff responsible for administering the school program and resolving all problems that arise between the school regulations and the on-the-job activities of the employed student. The coordinator acts as liaison between the school and employers in programs of cooperative education or other part-time job training.

5. Course - A particular subject following a plan of instruction designed to meet specific objectives and limited to a predesignated schedule and content.

6. Course of Study - A comprehensive instructional plan which sets forth the scope and teaching sequence of all of the activities required of a particular subject in a curriculum. It should include: the objectives of the course, course outline, skills and technology to be taught, references, visual aids and instruction sheet.

7. Course Outline - Consists of selected jobs, operations, or skills and instruction topics to be taught, listed in the order in which they should be learned by the student.

8. Curriculum - An integrated group of courses and related activities arranged in a logical sequence and designed to meet designated educational or vocational objectives.

9. Curriculum Laboratory - An area especially equipped with desks, chairs, reference books, duplicating equipment, and other facilities needed by persons designated to develop courses of instruction and special types of teaching materials.

10. Curriculum Materials - Any written or audio-visual type of materials developed to meet the objectives of an educational program.

11. Evaluation - A term used in education indicating the procedure for determining the effectiveness of instruction.

12. Exploratory Courses - School subjects designed to provide the student with a broad, general, overall view of the knowledges and skills involved in a field of learning or an occupation. Courses which provide students with exploratory and introductory experiences in a wide range of occupations serve as an aid in choosing a vocation.

13. Information Sheet - A sheet containing essential facts such as; terms, equipment, materials and processes necessary for the understanding of an instructional unit which is largely instructional in nature.

14. Instruction Sheet - A broad term for graphic teaching devices containing various information sheets necessary for the completion of a learning process. Types of sheets are: operation sheets, information sheets, job sheets, assignment sheets, etc.

15. Instructional Materials - Anything of a written or audio-visual nature used by the teacher in teaching or by the student in learning.

16. Job Analysis - A detailed listing of duties, operations, and skills necessary to perform a clearly defined, specific job, organized into a logical sequence which may be used for teaching, employment, or classification purposes.

17. Job Sheet - A guide sheet giving complete references and instructions on how to perform, in the proper sequence, the operations necessary to successfully complete a production job. It contains the name of the job, drawings, materials, and tools needed, general instructions, order of operations, and check points.

18. Key Points - Points of information concerning an operation which are critical enough to "make" or "break" the job in progress. They are the key to doing the job correctly, safely, efficiently, or accurately.

19. Laboratory Experiment Sheet - A procedural guide for laboratory experiments. It should contain the subject matter, references, introductory information, materials and equipment needed, procedure, and provisions for conclusion.

20. Lesson - One of a sequence of instructional units within a course which contains elements to be mastered in the achievement of specific objectives in the overall course. (a small unit of learning)

21. Lesson Plan - An organized plan or procedure for teaching a complete lesson efficiently. A lesson plan should include the name of the unit of training, the subject matter, objectives, references, teaching methods and aids, materials or equipment needed, motivation suggestions, key points, summary methods of application, and tests of achievement.

22. Objectives - The ultimate goals in the development of skills, knowledge, attitudes, and appreciations to be reached through a particular instructional course. Objectives are usually more broad and all-inclusive than the aims of a lesson.

23. Occupational Information - Systematically organized data used by guidance personnel for the purpose of helping persons make a vocational choice. Material concerns the nature of the work, duties, responsibilities, and compensations involved in the several vocations, including information about employment outlook, promotional opportunities, and entrance requirements.

24. On-the-job Training - Instruction in the performance of a job given to an employed worker by the employer during the usual hours of the occupation. Usually the minimum or beginning wage is paid.

25. Operation Sheet - A sheet giving the sequence of instruction necessary to accomplish a single manipulative operation. It should include the title of the unit, title of the operation, the occupation, the tools, materials and equipment needed, operation breakdown, sketches, and references.

26. Pre-employment Training - Organized, brief, intensive instruction for entrance into employment in a specific job or retraining for workers leading to new duties or a new position.

27. Preparatory Training - Programs preparing enrollees for employment.

28. Progress Chart - A running record showing the operation, jobs, projects, or other assignments, completed by the individual students in the class.

29. Project - An article, activity, investigation, or problem chosen by or assigned to a student. The student is assisted by the teacher in its planning and completion.

30. Related Subjects - Classroom and laboratory courses designed to increase knowledge, understanding, and ability to solve technical and theoretical problems concerned with a particular occupation.

31. Resource Person - A person who is a participant in a discussion concerning a problem or subject. His extensive experience and broad knowledge of the subject enable him to render authorative opinions.

32. Short-unit Course - A self-contained training program of relatively short duration for the purpose of giving instruction in a single phase of a subject or in the operation of a specific machine.

33. Study Guide - A series of assignment sheets in booklet form containing directions or questions for the use of individual students in a supervised study procedure.

34. Survey, Community - A fact-finding study of socio-economic conditions and resources, community agencies, industries, business, farming, institutional practices, problems and practices of families, etc., as they exist at a given time in a given community. It is used by the school as a guide in revising school offerings to meet local needs.

35. Survey, Occupational - An investigation and evaluation to gather pertinent information about a single industry or the occupations of the area to determine the need for training, the prevalent practices, the labor supply and turnover, for the purpose of maintaining the vocational program at a realistic level.

36. Survey, Vocational Education - A study to obtain necessary information as a basis for the proper development of programs of vocational education. It serves to identify the needs for vocational training, recommend suitable types of classes, assist in the development of new instructional processes, and evaluate the results of work already done.

37. Teaching Aid - An auxiliary instructional device, such as a chart, drawing, picture, film, mock-up or a working model, intended to facilitate learning.

38. Unit of Instruction - The smallest division of instruction for which a full lesson is taught. A single operation in a trade may constitute a unit of instruction.

39. Upgrading or Updating Training - Supplementary or extension training for the purpose of advancement or improving a worker's efficiency.

40. Vocational School, Public - A secondary school under public supervision and control and supported by public funds which provides instruction that will enable high school youth and adults to prepare for, enter, and make progress in a skilled trade or occupation of their choice.

(A more comprehensive listing of definitions may be found in Definitions of Terms in Vocational, Technical, and Practical Arts Education available from the American Vocational Association.)

PRE-REGISTERED CONFEREES

icholas Acquaviva tate University College New York	7
Gwen Aldredge South Dakota State University	2
B. L. Anderson State Board of Education North Carolina	7
Virginia Anderson Lamar State College of Tech. Texas	5
Lane C. Ash US Office of Education Washington, DC	2
J. C. Atherton Louisiana State University	6
Nancy A. Bagott University of Arizona	7
lliam Baley es Moines, Iowa	1
L. V. Ballard Texas Education Agency Austin	5
Carl R. Bartel Arizona State University	1
Jean Barton Vocational Homemaking Teachers Association - Texas	6
Willard M. Bateson Wayne State University Michigan	5
H. D. Bearden Texas A & M University	2
William J. Becker University of Florida	6
Dexter L. Betts llas Chamber of Commerce	2
Lynn G. Bevins Voc-Tech Curriculum Laboratory Tennessee	2
Walter Billiet Trenton, New Jersey	5
Bruce Blackstone US Office of Education Washington, DC	
Annelle Bonner University of Southern Mississippi	1
Earl Bowler US Office of Education Washington, DC	
Walter Brown Trenton, New Jersey	1
O.A. Brunsvold Des Moines, Iowa	2
John C. Bruton Gordon Cooper Voc-Tech School Oklahoma	4
Paul Buckley North Shore Community College Massachusetts	5
T. R. Buie Southwest Texas State College	3
Hubert Burnham, Jr. The Sears-Roeburk Foundation Texas	6
James W. Cathey Greenville Senior High School Texas	3
Ellen M. Champoux The University of North Carolina	6
Murray L. Chandler LTA Education Systems, Inc. Texas	6
Virginia Clapp Grossmont Union HS District, California	3
Barbara Clawson Texas Technological College	4
Darrell W. Coburn Alliance, Nebraska	6

Samuel R. Collins Prairie View A & M College Texas	4
Mary J. Combs University of Georgia	6
K. B. M. Cooks, Jr. National Urban League Georgia	6
Chris D. Corbin Fort Smith Public Schools Arkansas	6
Hazel Crain University of Nebraska	7
Robert A. Crowley Hawkeye Institute of Tech. Iowa	5
J. W. Cunningham Raleigh, North Carolina	1
Charles Cyrus The University of Texas	6
H. Leon Davis Texas Employment Commission	1
B. J. Dean Grayson County College Texas	2
Monte DeBusk Greenville Chamber of Commerce Texas	7
W. R. Dendy Texas	1
Alva R. Dittrick Chicago, Illinois	3
Jerry S. Dobrovolny University of Illinois	5
Forrest Dorsey Irving Public Schools Texas	4
Maurice Driscoll Butte Public Schools Montana	1
Delta Neumann Dugan Texas Woman's University	3
William A. Dwyer Canton, Massachusetts	1
Franklin H. Dye Northern Illinois University	2
John Elias Lincoln, Nebraska	6
David R. Enderby San Angelo Public Schools Texas	4
Cecil H. Erickson Richmond, Virginia	6
Mary Evans North Texas State University	5
O.J. Fister Oilwell Division of U.S. Steel Texas	1
Hazel A. Flood Makato State College Minnesota	2
Charles Forgnone Bureau of Educational Handicapped Washington, D.C.	3
James H. Frazier Galveston Community College Texas	5
Kathleen Funderburk State Department of Education Florida	5
Warren Geraghty Department of Education Rhode Island	4
Harlan Giese Des Moines, Iowa	3
J. R. Gililland El Reno, Oklahoma	4
Bernard Gjerdrum College of San Mateo California	3

Don Goff Structural Clay Products Inst. Virginia	2
L. A. Grimes The University of Texas	6
B. M. Hackney Texas A & M University	7
Arthur K. Haight American Book Company New York	4
V. B. Hairr Department of Public Instruction North Carolina	1
Chester Hall National Restaurant Association Illinois	2
Gene Hall Vocational Technical College Indiana	1
Wallace R. Halverson Pierre, South Dakota	4
Garland G. Hammer Lubbock Public Schools Texas	6
Richard Hardmann US Office of Education Washington, DC	6
Paul Harrison University of Maryland	5
Earl Hay State Education Department New York	4
Robert C. Haynie A, M, and Normal College	5
Carl A. Heinz US Office of Education Washington, DC	3
Neva I. Henderson Sam Houston State College	1
Eunice Herald Western Michigan University	2
Sidney High US Office of Education Washington, DC	
Mary L. Hill Illinois State University	2
Leta F. Holley University of Nebraska at Omaha	6
John W. Holstein Indiana State University	5
Kathleen M. Howell Eastern Illinois University	6
Denver B. Hutson University of Arkansas	3
Thomas A. Jackson Florida A & M University	1
Floyd Jaggears State Department of Education Florida	4
Calvin E. James Northern Arizona University	7
Marjorie C. Jerry Indiana State University	6
Ronnie Jeffries State Department of Education Florida	3
Margaret H. Johnson The University of Nebraska	2
Ray A. Johnson University of Massachusetts	7
Milo P. Johnson Mt. San Jacinto College California	4
Charles A. Jones Charles A. Jones Publishing Co. Ohio	3
Mildred N. Jordan Virginia State College	7
Elaine Jorgenson Oklahoma State University	5

Joseph Kadish 1
Arlington, Virginia

David Kelly 2
Job Corps
Washington, D.C.

Jerline Kennedy 3
Dallas Independent School Dist.

Ghernot Knox 4
Department of Education
Massachusetts

F. J. Konecny 6
Santa Fe, New Mexico

Emiko Kudo 2
Honolulu, Hawaii

Alfred T. Kynard 1
Prairie View A & M College
Texas

Bette LaChapelle 4
Wayne State University
Michigan

Frank W. Lanham 5
Wayne State University
Michigan

Vaughnie J. Lindsay 7
The University of Oklahoma

R. Charles Long 4
Virginia State College

Bill E. Lovelace 2
Texas Education Agency

Robert R. Luter 6
The University of Texas

Vernon Maack 7
Alexandria Area Technical School
Minnesota

Edward Martin 5
Department of Education
Rhode Island

Fred A. Martin 2
Frankfort, Kentucky

William R. Mason 2
Cleveland Public Schools

John P. C. McCarthy 4
US Office of Education
Washington, DC

Ronadl Meek 5
Stillwater, Oklahoma

Marshall Metze 1
Battelle Memorial Institute
Ohio

John M. Meyer 5
UCLA

Warren Mika 3
MDTA - Detroit, Michigan

C. L. Miller 3
Corpus Christi Independent
School District

W. R. Miller 5
University of Missouri

John H. Mitchell 7
University of Southwestern Louisiana

Perry Mock 1
Central Missouri State College

Edward J. Morrison 1
Columbus, Ohio

Myra Mosier 5
Little Rock, Arkansas

Helen Nichols 7
University of Southwestern Louisiana

John J. O'Brien 5
State Department of Education
Connecticut

John Obst 2
Howard W. Sams & Co., Inc.
Indiana

G. L. O'Kelley, Jr. 3
University of Georgia

Claude C. Owens 3
Dallas County JC District

Foy Page 2
Texas A & M University

C. Edwin Pearson 5
Memphis State University

Jane Perry US Office of Education Washington, DC	5
Lucile Peterson Texas Southern University	6
Milo J. Peterson University of Minnesota	2
J. P. Plain The Sears-Roebuck Foundation Texas	6
Judy Pollan East Texas State University	2
George B. Potter Computer Sciences Institute California	4
Virginia B. Poulson Brigham Young University	1
Dennis H. Price University of Cincinnati	6
Albert Ragster Department of Education Virgin Islands	5
Horace W. Ray Battelle Memorial Institute Ohio	2
Mary Della Roberson Tennessee Technological University	7
Lucy Robinson State Department of Education Florida	1
Walter J. Robinson Northwestern State College Louisiana	5
Tom Rogers Brodhead-Garrett Co. Ohio	4
Milferd Rosendahl Health Occupations Education Iowa	4
Vila Rosenfeld East Carolina University, NC.	6
Margaret Nowatzki Kansas State University	6
Suler E. Ryan Sam Houston State College	1
Dave Sampson LTV Electrosystems Texas	7
Robert D. Sartin Mississippi State University	3
Roger Schoenecker 3M Education Press	3
Fred C. Schollmeyer Dade County Public Schools Florida	3
Carl Scott Indianapolis, Indiana	7
Charles P. Scott University of Pittsburgh	4
Marvin Seglem Phoenix, Arizona	2
Rose Shanight Northeast Missouri State College	3
Jerry Shuck Louisville Board of Education	3
Richard H. Simpson Chas. A. Bennett Co., Inc. Illinois	4
H. Halleck Singer Temple University Pennsylvania	7
Neill C. Slack Utah State University	4
Arthur W. Smith, Jr. Riverside Unif. School Dist. California	7
Carey Snyder Fort Worth Board of Education	4
John Sojat State Department of Education Florida	2

Alice J. Sollie Fresno State College California	7
Stanley J. Spanbauer Neenah, Wisconsin	7
James Staloch State Department of Education Minnesota	6
Sam Stenzel Treasurer, NVATA Kansas	1
Wesley D. Stephans McKnight & McKnight Pub. Co. Illinois	7
Bob Stewart University of Missouri	4
Vannoy Stewart Huntsville, Texas	2
Bragg Stockton Dallas Independent School Dist.	7
Bill Stover The Ohio State University	3
Lou Stoyanoff Acoustifone Corporation California	3
Rosa Jean Tannahill Lamar State College of Technology Texas	4
Harold Tate Texas AFL-CIO	5
Charles Templeman Southwestern Publishing Company Ohio	1
Joyce J. Terrass Purdue University	7
J. R. Thomas State Department of Education Alabama	7
David Thompson Honolulu, Hawaii	1
Eva Thompson Abilene Christian College	6
J. Jackson Townsend Charleston, West Virginia	4
Green B. Trimble Greater Fort Worth Action Agency	5
Mabel Tucker Texas College	6
Georgia Turner Fort Worth, Texas	6
Adrian Trimpe Western Michigan University	1
Benjamin A. Ulmer Helena, Montana	
Paul Van Winkle Chas. A. Bennett Co., Inc. Illinois	3
D. Macil Via Raleigh, North Carolina	3
L. D. Virdue Baton Rouge, Louisiana	6
Irene Von Cseh Hunter College- New York	6
Charles Wade Frankfort, Kentucky	1
Roy Walker College of the Mainland - Texas	3
Wilma Warner Western Illinois University	1
Jed W. Wasden Salt Lake City, Utah	3
Earl S. Webb Texas A & M. University	1
William Wenzel Trenton, New Jersey	2
Linda White Delmar Publishers, Inc. New York	3
Thomas R. White Indiana University	2

Thomas White Indiana University	2
Carl D. Whitehurst Raleigh, North Carolina	2
Earl Williams State Department of Education Georgia	4
Steven E. Williams Dallas, Texas	1
John C. Wilson Department of Public Instruction Delaware	4
Earl Wineinger State Department of Education Kansas	7
Albert P. Wood Kansas City, Missouri	4
Ed Wood The University of North Dakota	2
Merle W. Wood Oakland Unif. School District California	2
Robert E. Wooldridge Northern Arizona University	4
Don W. Woolman Kansas State College	7
Frances Wysowski McNeese State College Louisiana	3
Clifford Zenor Madison, Wisconsin	5